STUDIES IN NYĀYA-VAIŚEṢIKA METAPHYSICS

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To

MY FATHER

PREFACE

Though essentially a critique of knowledge, the Nyāya is also a comprehensive system of metaphysics. In the latter aspect, however, it has so completely taken over the conception of a realistic universe as elaborated in the Vaiśeṣika, that the two schools of thought need hardly be differentiated except for a historical study of their lines of development. The present work is an attempt to give an expository and critical analysis of the solutions offered by Nyāya-Vaiśeṣika realism for some of the fundamental problems of metaphysics.

The texts of Nyāya-Vaiśeṣika bristle with linguistic technicalities which are not always free from obscurity. This has not infrequently hampered an adequate evaluation of the metaphysical speculations of the school. I have endeavoured in the following pages to make it possible for a modern reader to judge some of these speculations in their proper perspective and appraise them correctly. To appreciate or even to indicate the contributions of the great writers of the school has often involved rethinking their ideas in modern terms. Every possible care has however been taken to avoid the risk of reading into these writers ideas which are foreign to them.

The scope of this work is limited mainly to the consideration of the problems relating to the physical order—its reality and substantiality, its constitution and character, its different members and the laws governing their behaviour, its relation to time and space. These problems raise a large number of important issues and cover a vast field in Nyāya-Vaiśeṣika metaphysics. I have concluded with a chapter on Causality, for all Nyāya-Vaiśeṣika speculations, it will be seen, presuppose certain definite conclusions on this question.

No account of realism can be complete or valuable which does not take note of the destructive criticism of the idealists and sceptics. As is well known, the Buddhist philosophers of different schools and the Advaita-Vedāntist dialecticians like

Śrīharṣa and Citsukha have been the chief critics of the Nyāya-Vaiśeṣika scheme of reality. I have undertaken, wherever necessary, a critical review of the arguments of these philosophers and tried to examine how far the Nyāya-Vaiśeṣika point of view can be defended in its controversy with the opposing schools of thought.

I take this opportunity of expressing my warmest gratitude to my *ācārya*, Late Mahāmahopādhyāya Pandit Phanibhushan Tarkavagish, with whom I had the privilege of reading some of the important texts of the Nyāya-Vaiśeṣika system. To my other teachers of Indian Philosophy, Mahāmahopādhyāya Pandit Yogindra Nath Tarka-Vedantatirtha and Dr. Satkari Mookerjee, I am grateful for material help during the preparation of this work. I am also deeply indebted to Mahāmahopādhyāya Pandit Gopinath Kaviraj, Late Principal, Government Sanskrit College, Benares, for many valuable suggestions and criticisms. I have the greatest pleasure in acknowledging my obligation to Dr. B. C. Law, the great Indologist and patron of scholarship, but for whose generous help and active sympathy it would not have been possible to bring out this book in its present form. I am thankful to the authorities of the Bhandarkar Oriental Research Institute for giving this volume a place in the Bhandarkar Oriental Series. My hearty thanks are also due to my pupil, Mr. Makhanlal Mookerjee, M.A., of the Ramkrishna Mission Vidyamandir, Belur, for his assistance in the correction of the proofs. Lastly, I must offer sincere thanks to Mr. P. C. Ray and Mr. K. K. Bhattacharya of the Sri Gouranga Press for the keen interest they have taken in piloting the book through the press.

S. Bhaduri

ABBREVIATIONS

ATV. Ātmatattvaviveka of Udayana, ed. BI.

ATVBh. Bhagīratha Ṭhakkura's commentary on ATV., ed. BI.

ATVD. Raghunātha Śiromaṇi's commentary (*Dīdhiti*) on ATV., ed. BI.

ATVS. Śaṅkara Miśra's commentary on ATV., ed. BI.

BhP. Bhāṣāpariccheda of Viśvanātha, ed. NSP.

BI. Bibliotheca Indica, Calcutta.

BSS. Bombay Sanskrit and Prakrit Series, Bombay.

Cit. Citsukhī (Tattvapradīpikā) of Citsukhācārya, ed. NSP.

CSS. Chowkhamba Sanskrit Series, Benares.

Din. Dinakara Bhaṭṭa's commentary (*Dinakarī*) on SM., ed. NSP.

KKK. Khaṇḍanakhaṇḍakhādya of Śrīharṣa, ed. CSS.

KKKS. Śaṅkara Miśra's commentary on KKK., ed. Benares, 1917.

KKKV. Vidyāsāgara's commentary on KKK., ed. CSS.

KR. Kaṇādarahasya of Śaṅkara Miśra, ed. CSS.

KV. Kiraṇāvalī of Udayana, ed. Benares Sanskrit Series.

KVBh. Kiraṇāvalībhāskara of Padmanābha Miśra, a commentary on KV., ed. STS.

LV. Lakṣaṇāvalī of Udayana, ed. Benares, 1897.

MBh. Mahābhāṣya of Patañjali.

MM. Mānameyodaya of Nārāyaṇa Bhaṭṭa, ed. Trivandrum, 1912.

NBh. Nyāyabhāṣya of Vātsyāyana, ed. VSS.

NK. Nyāyakandalī of Śrīdhara, ed. VSS.

NKu. Nyāyakusumāñjali of Udayana, ed. BI., 1890.

NKuB. Nyāyakusumāñjalibodhanī of Varadarāja, a commentary on NKu., ed. STS.

NKuP. Nyāyakusumāñjaliprakāśa of Vardhamāna, a commentary on NKu., ed. BI.

NLV.	Nyāyalīlāvatī of Vallabha, ed. CSS.
NLVK.	Kaṇṭhābharaṇa of Śaṅkara Miśra, a commentary on NLV., ed. CSS.
NLVP.	Nyāyalīlāvatīprakāśa of Vardhamāna, a commentary on NLV., ed. CSS.
NM.	Nyāyamañjarī of Jayanta Bhaṭṭa, ed. Kashi Sanskrit Series, 1936.
NP.	Nayanaprasādinī of Pratyagrūpabhagavat, a commentary on Cit., ed. NSP.
NS.	Nyāyasūtra of Gautama, ed. BI.
NSP.	Nirnayasagara Press, Bombay.
NSVr.	Nyāyasūtravṛtti of Viśvanātha.
NV.	Nyāyavārttika of Uddyotakara, ed. BI.
NVTT.	Nyāyavārttikatātparyaṭīkā of Vācaspati Miśra, ed. VSS.
PP.	Prakaraṇapañcikā of Śālikanātha Miśra, ed. CSS.
PPBh.	The Bhāṣya of Praśastapāda, ed. VSS.
PTN.	Padārthatattvanirūpaṇa of Raghunātha Śiromaṇi, ed. Benares, 1916.
RR.	Rāmarudra Bhaṭṭācārya's commentary on Din., ed. NSP.
SBNT.	Six Buddhist Nyāya Tracts in Sanskrit, ed. BI.
SD.	Śāstradīpikā of Pārthasārathi Miśra, ed. NSP.
SK.	Sāṅkhyakārikā of Īśvarakṛṣṇa.
SM.	Siddhāntamuktāvalī of Viśvanātha, ed. NSP.
SP.	Saptapadārthī of Śivāditya, ed. V. S. Ghate, Bombay.
STK.	Sāṅkhyatattvakaumudī of Vācaspati Miśra, ed. Kṛṣṇanātha Nyāyapañcānana, Calcutta.
STS.	Saraswati-Bhavana Texts, Benares.
SV.	Ślokavārttika of Kumārila Bhaṭṭa, ed. CSS.
TaS.	Tarkasaṅgraha of Annam Bhaṭṭa, ed. BSS.
TBh.	Tarkabhāṣā of Keśavamiśra, ed. BSS., 1937.
TC.	Tattvacintāmaṇi of Gaṅgeśa, ed. BI.
TD.	Tarkadīpikā of Annam Bhaṭṭa, a commentary on TaS., ed. BSS.
TK.	Tarkakaumudī of Laugākṣi Bhāskara, ed. NSP.

TS.	Tattvasaṅgraha of Śāntarakṣita, ed. Baroda, 1926.
TSP.	Pañjikā, a commentary on TS., by Kamalaśīla, ed. Baroda, 1926.
VKT.	Vedāntakalpataru of Amalānanda Sarasvatī, a commentary on Bhāmatī, ed. NSP.
VKTP.	Vedāntakalpataruparimala of Appaya Dīkṣita, a commentary on VKT., ed. NSP.
VS.	Vaiśeṣikasūtra of Kaṇāda, ed. BI.
VSLM.	Vaiyākaraṇasiddhāntalaghumañjūṣā of Nāgeśa Bhaṭṭa, ed. CSS.
VSS.	Vizianagram Sanskrit Series, Benares.
VUp.	Upaskāra, a commentary on VS., by Śaṅkara Miśra, ed. BI.
VV.	Vyomavatī, a commentary on PPBh., by Vyomaśivācārya, ed. CSS.
YBh.	Yogabhāṣya of Vyāsa, ed. Benares, 1911.

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CHAPTER I

INTRODUCTORY

1. The Categories or Types of Reals

The Nyāya-Vaiśeṣika philosopher is an uncompromising realist and believes in an objective order of reals external to and independent of the cognizing subject. The clue to these reals is, however, in his opinion, the universe of experience with which the individual starts.[1] By experience the Nyāya-Vaiśeṣika means all varieties of valid knowledge, whether perceptual or non-perceptual, which have an unerring objective reference, and which, therefore, unmistakably attest the presence of a universe of reals in and around us. These reals are, therefore, absolutely objective facts, knowable no doubt, but existing prior to, and making possible, all knowledge referring to them. In fact, it is from these reals that knowledge derives its character and peculiarity.[2] The Nyāya-Vaiśeṣika thus starts with the assumption that whatever is delivered by uncontradicted experience, must necessarily be real. The human mind, constituted as it is, cannot be persuaded to withhold its acceptance of the evidential value of its experience, as this means an inescapable deadlock of even the most elementary intellectual activity. The Buddhist nihilist, in his attempt to make a wholesale repudiation of reality, gets himself inevitably involved in a hopeless self-contradiction, inasmuch as a successful denial of reality is possible only if the reality of the denial is acknowledged.[3] If, therefore, it is impossible to be conscious of an object and to deny at the same time the reality of what we are conscious of, the reality of the object has to be acknow-

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[1] *Saṃvid eva hi bhagavatī vastūpagame naḥ śaraṇam.* Quoted in VUp., VII, ii. 26.

[2] *Na hi viṣayātiśayam antareṇa pratibhāsātiśayo 'vakalpate.* NM., pt. I, p. 124.

[3] NBh., IV. ii. 30.

ledged as the minimum datum. Even the idealist who is not prepared to go beyond percepts, or ideas as he calls them, must accept the reality of his ideas as the very basis of his creed. The ideas, however, do not rest confined within their own dimension, but, on the contrary, refer to, and depend for their very possibility upon, extra-subjective facts. If the validity of their extra-subjective reference is called in question, there will be no safeguard to prevent the extension of this scepticism with regard even to the ideas themselves.

Having thus made out a case for the logical necessity of a belief in the reality of the data of experience, the Nyāya-Vaiśeṣika philosopher proceeds to make an attempt to understand the nature of reals through an analysis of experience itself. But in our experience we are confronted with an infinite multitude of things which claim to be recognized as objectively existent and compel our assent to their being. The philosopher sets himself the ambitious task of knowing all reals by means of faculties given to humanity. But this self-imposed task would prove a fool's errand if things in their infinite plurality were sought to be comprehended in their individual nature. The infinitely varying individuality of things may not be known by a finite mind ; but nothing short of this is the objective of the philosopher. Although, at first sight, the mission, from its very magnitude, appears to be doomed to failure, yet, as a matter of fact, there are certain redeeming features in the inexhaustible expanse of reality, which make the problem capable of being tackled even with the admittedly limited resources of human intellect. The data of experience may baffle all enumeration ; but they are not absolutely discrete and dissimilar, and are found to possess community of nature *inter se*. This makes it possible to group them under a number of types or categories of reals, which gives the different objects grouped under each of these a common name and designation. The designation is, of course, a device created by reflective thought, but it is none the less symbolical of the reality that is shared by every individual object. The Vaiśeṣika realist would repudiate all attempts to interpret the categories

as ideal constructions necessitated by the exigencies of human understanding and serving as convenient tools in the task of systematization of experiential data. These categories, or *padārthas*[4] as they are called, are believed by the Vaiśeṣika to be ultimate reals, absolutely objective facts. They are not products of thought; they are independent of all thought referring to them. It is an accident that there are conscious beings who cognize them, but this cognition makes no difference to their autonomous reality. They would exist as reals even if there were not a single conscious mind to think of them. They are, therefore, not merely logical categories but ontological. Hence the study of the categories is for the Vaiśeṣika a classification of the forms which actually characterize reality.

According to the Vaiśeṣika, there are six categories of reality, *viz.*, substance (*dravya*), quality (*guṇa*), action (*karman*), universal (*sāmānya*), particularity (*viśeṣa*) and inherence (*samavāya*).[5] Kaṇāda and Praśastapāda mention only these six positive categories, which are believed to cover the entire sphere of reality, including the object and subject of thought and even the process of thought itself. A seventh category, *viz.*, negation or non-being (*abhāva*), has been put forward by the later exponents of the school.[6] Negation as an additional ontological category implies the fact of the absence of something, a fact believed to be as real as a thing that exists.

The Nyāya, though accepting the general metaphysical position of the Vaiśeṣika, proposes a scheme of categories which is fundamentally different from that of the latter. Gautama, in the *Nyāyasūtra*, enumerates as many as sixteen *padārthas* or categories, *viz.*, methods of valid cognition (*pramāṇa*), objects

[4] The term *padārtha* literally means the meaning of a word, *i.e.*, a thing denoted by a word. This suggests that reality is expressible in language (*abhidheya*). But language presupposes thought or knowledge. Knowledge (*pramiti*) and verbal usage (*śabdavyavahāra*) should, therefore, be held to refer to reality. They thus constitute the evidence of the existence of reals.

[5] VS., I. i. 4; PPBh., p. 6.

[6] *Vide* NK., p. 7; KV., p. 6; SP., p. 3.

of valid cognition (*prameya*), doubt (*saṃśaya*), purpose (*prayojana*), probative examples (*dṛṣṭānta*), established conclusion (*siddhānta*), members of a syllogism (*avayava*), hypothetical reasoning (*tarka*), conclusive knowledge (*nirṇaya*), arguing for arriving at truth (*vāda*), arguing for victory (*jalpa*), merely destructive argument (*vitaṇḍā*), fallacious reasons (*hetvābhāsa*), quibbling (*chala*), pointless objections (*jāti*) and vulnerable points in an argument (*nigrahasthāna*).[7] Of these categories, the most important, from the Nyāya point of view, is, of course, the first, *i.e.*, the methods of valid cognition. The objects of valid cognition constituting the second category occupy a rather subordinate position in the Nyāya system which seems to be directly concerned with the study of the ways of knowing rather than of the objects that are knowable. The remaining fourteen categories are in the nature of subsidiaries to the first, a thorough familiarity with them being held to be essential to the correct application of the various methods of cognition, particularly the method of inference. That the sixteen *padārthas* of the Nyāya are not the ultimate ontological categories, *i.e.*, that they are not the most general kinds or types of reals, is indeed obvious. That they do not represent an exhaustive classification of all aspects of reality, is also admitted by the Naiyāyika himself.[8] The purpose and value of the Nyāya scheme will, however, be fully understood if we take into account the peculiar position and standpoint of the Nyāya as a system of thought. While the Vaiśeṣika is mainly a study of reality itself in its various aspects, the Nyāya is a *pramāṇaśāstra*, an investigation into the problem of knowledge in its relation to reality. It should therefore be supposed that the Nyāya list of categories is intended to give us a general and comprehensive idea of all the various topics, in the consideration of which the Nyāya is primarily interested as a *pramāṇaśāstra*. This, however, does not imply that the Nyāya is opposed to the six or seven ontological categories of the Vaiśeṣika. As a matter of fact, eminent writers of the Nyāya school are found to have

[7] NS., I. i. 1.

[8] NM., pt. I, p. 11.

clearly expressed their approval of the Vaiśeṣika ontological scheme and the Vaiśeṣika principle of classifying and labelling the reals.[9]

It is interesting to notice in this connection that, while from the Vaiśeṣika standpoint cognizability (*prameyatva*) is co-extensive with reality, the *Nyāyasūtra* enumerates only twelve cognizables as constituting the category of *prameya*. They are as follows: soul (*ātman*), body (*śarīra*), senses (*indriya*), sensible specific qualities (*artha*), cognition (*buddhi*), mind (*manas*), activity (*pravṛtti*), moral impurities (*doṣa*), transmigration (*pretyabhāva*), consequences of activities (*phala*), suffering (*duḥkha*) and emanicipation from the state of suffering (*apavarga*).[10] Vātsyāyana points out that the list neither is, nor is intended to be, an exhaustive enumeration of all possible objects of valid cognition ; it is only a list of those facts which are believed to be *necessary* objects of cognition, that is, of which it may be said that they should be cognized correctly (*prameya*) for the achievement of that highest spiritual end which is characterized by the cessation of all suffering. It is also admitted by Vātsyāyana that besides these twelve there are countless other cognizables or reals and that it is possible to classify them all under the six or seven heads recognized by the Vaiśeṣika.[11]

2. The Criteria of Reality

The question naturally arises as to what we should understand by the term 'reals'; in other words, what are the criteria of reality as such? The Vaiśeṣika philosopher does not embark upon a tangled metaphysical disquisition in order to arrive at a solution of this problem. According to Praśastapāda, the categories under which all reals are subsumed are characterized by 'isness' (*astitva*), 'namability' (*abhidheyatva*) and 'knowability' (*jñeyatva*).[12] They have each one of them

[9] SM., p. 41.
[10] NS., I. i. 9.
[11] NBh., I. i. 9.
[12] PPBh., p. 16.

an individual nature or 'isness' which prevents them from being confused with one another, or lumped into a more comprehensive category. In other words, they exist as distinct realities. The categories have also the character of being knowable and expressible, which implies that they are real ontological categories and not intellectual constructs in the Kantian sense. They are not forms but objects of knowledge. They are not mere names or linguistic fictions; they are ultimately referred to by names which derive their meaning from them. As the categories are supposed to cover the entire sphere of reality, reality itself or any part of it must be held to be definable by means of the three characteristics of the categories.

Śrīdhara explains 'isness' (*astitva*) as the distinctive character or individuality (*svarūpa*) of a thing.[13] Every real has its isness which is something unique; that is to say, the nature of isness, in each instance, is distinct and exclusive. It is necessary here to observe that the isness which is affirmed of each real is to be understood as numerically and functionally different from what is meant by 'existence' (*sattā*), considered as the highest universal (*parasāmānya*). A universal (*sāmānya*) serves to bring together a number of individual objects under a class-concept and thus stands for a common essential nature in which all of them participate.[14] Existence is recognized by the Vaiśeṣika as the highest universal inasmuch as it functions as the most comprehensive unifying principle bringing all *existents* together under one category and emphasizing their community of nature, without any reference to their mutual differences.[15] On the contrary, the type of isness possessed by a real as such, whether existent or non-existent, is purely individualistic.

Moreover, every real is a real because it has its own distinctive isness; its isness however is not anything distinct from its own self. To hold the isness of a thing as different

[13] *Yasya vastuno yat svarūpaṃ tad eva tasyā 'stitvam.* NK., p. 16.
[14] KV., p. 22.
[15] VS., I. ii. 4.

from the thing itself will entail the admission of a separate category, which, again, will lead to an absurdity, as the thing *per se* being devoid of isness will transpire to be an unreal fiction. But existence (*sattā*) that is predicable of only some types of reals (*viz.*, substance, quality and action) is distinguishable from the reals themselves.[16] For existence being a universal inheres in many individuals (*anekasamaveta*), and this relation of inherence between existence and each individual is possible only if the terms are held to be numerically different. The isness of a thing is thus of the nature of the 'thing itself', or its essence, which belongs to it not by any extrinsic relation, but as its very stuff. Even the so-called existents cannot dispense with their isness, for they can be affiliated to the universal of existence only if they *are*, *i.e.*, only if their distinctive self-being is a fact. They must be reals before they can be existents.[17] There may be a real non-existence, but not an existent which is not a real. It would, therefore, be wrong to suppose that the concept of existence as a universal would annul the distinctive self-individuality of things. The truth is that the distinctive self-individuality of reals is a felt fact. The plurality of reals has no doubt a plurality of isness, which, if logically analysed, will involve in each case the negation of the isness of others. If the proof of existence-universal as a synthetic and unitary principle can be found only in the consciousness of the same, the proof of isness or self-individuality of each one of the reals will also consist in the particular consciousness relevant to it. The Vaiśeṣika refuses to be led into the acceptance of one universal existence or being in which all distinctions are obliterated, which is, however, the position sought to be established by the Advaita-Vedāntist. And his apology is his loyalty to experience which bears unmistakable testimony to plurality and diversity. The fact that a pen and a table are both reals does not make them identical. What is the warrant of our knowledge that they are reals? Certainly it is

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[16] PPBh., p. 312.

[17] *Nā 'py astitvam anarthakaṃ niḥsvarūpe sattāyāḥ samavāyābhāvāt.* NK., p. 16.

experience. And what, again, is the warrant of our knowledge that they are different? Certainly it is the selfsame experience. No amount of pure reasoning will give us an idea, independently of experience, that the pen or the table is a real. So, if experience is the ultimate court of appeal, why should we accept one part of its deliverance and reject the other part? The Vaiśeṣika realist, therefore, does not see any contradiction in a real being a distinct and determinate fact, in which its difference from other reals is as much its constitutive element as its own being. To be precise, the reality of an ultimate fact is necessarily a self-identity which implies its 'otherness'.[18] In fact, self-identity and 'otherness' are not two different elements; they constitute a unity, and it is only in logical thought that they are distinguished.

The real, therefore, is conceived, in the Nyāya-Vaiśeṣika system, as a definitely determined fact. It must possess a self-being, *i.e.*, a distinctive self-identity, without which it would neither be what it is, nor be different from what it is not. Such a distinctive self-identity, as we have already seen, necessarily presupposes a definitive intrinsic character. Fictions alone are completely uncharacterized; they are therefore indistinguishable from one another. A barren woman's son has no intrinsic nature, no individual peculiarity, on the basis of which it can be said to be different from a square circle. It is only the facts of a real world that can exist as distinct entities. Neither a barren woman's son nor a square circle belongs to this world.

We have discussed the concept of isness in so far as it is propounded by the Vaiśeṣika as a criterion of reality. It now remains to examine the two other criteria, *viz.*, knowability (*jñeyatva*) and namability (*abhidheyatva*). It is the nature of the real that by relating itself to and acting upon the human mind it produces therein the knowledge of itself. Considering its relation to the knowing mind we might say that a real is whatever is knowable (*jñeya*). Whatever is present to consciousness has an objective ground of reality. Thus a real

[18] *Yad etad vastunaḥ prātyātmikaṃ svarūpaṃ sa eva bhedaḥ tac ca pratyekaṃ vilakṣaṇam eva saṃvedyate.* NK., p. 29.

having isness or self-identity carries with it the implication that it is a *given* fact, that it can be an object of knowledge (*jñānayogya*). This gives us the second criterion of reality, *viz.*, knowability. As regards the third criterion, *viz.*, namability, it may be held to follow logically from the second, for naming or verbal expression is nothing but thought externalized. If a real can be an object of knowledge as a definitely determined fact, it can also be the object of verbal expression precisely in the same character. These two characteristics of knowability and namability do not, therefore, add to the concept of isness anything really new, or distinct from, or extraneous to, it ; they rather bring out explicitly something that was implicit in the latter. Metaphysically it would be wrong to consider these as mere characteristics (*dharma*) of reality, for the very being of reality is indistinguishable from any one of them ;[19] and each one of them by itself is an exhaustive expression of reality. Whatever is real is so just precisely as much by its isness as by its knowability or namability.[20] These three terms, in spite of their obvious connotative differences, are thus universal in their extension ; they are, therefore, interchangeable, so far as their application to reality as such, or any aspect of it, is concerned.

The criteria of reality formulated by Praśastapāda not only bring out important traits in the character of the real, but also indicate the fundamental philosophical position and attitude of the Vaiśeṣika school. By the concept of 'isness' the Vaiśeṣika philosopher has sought to emphasize that the real has an intrinsic character and a distinctive self-individuality. In other words, the real is what it *is* and not what we imagine it to be. This is evidently a standpoint which is in direct

[19] *Abhidheyatvam api . . . vastunaḥ svarūpam eva. Bhāvasvarūpam evā 'vasthābhedena jñeyatvam abhidheyatvaṃ co'cyate.* *Ibid.*, p. 16.

[20] Any one of these criteria gives an adequate definition of reality. So, according to Udayana, a real is whatever is namable. (*Abhidheyaḥ padārthaḥ*. LV., p. 1; cf. *abhidheyatvaṃ padārthasāmānyalakṣaṇam.* TD., p. 2.) Śivāditya, on the other hand, defines a real as that which is validly knowable. (*Pramitiviṣayaḥ padārthaḥ*. SP., p. 2.)

opposition to that of the subjectivist, the phenomenalist and the nihilist who have sought to make out that the so-called reals are nothing but fictions or pure creations of the imagination. Again, by insisting upon knowability as a test of reality and thus suggesting that the two concepts are co-extensive, the Vaiśeṣika philosopher makes it perfectly clear that he is not prepared to give quarter to any form of agnosticism. Reality, according to him, is capable of being fully known by means of the resources given to the human mind. The third criterion, *viz.*, namability, though logically following from the second, is also similarly significant. It is possible to conceive that, though one may have one's knowledge of an object, that knowledge may not be communicable to another mind. But if that be the case, the knowledge of the ultimate mysteries of existence is bound to remain the private possession of the fortunate few who may be gifted with superior powers. The result will be mysticism. By maintaining that reality is capable of being expressed in language, the Vaiśeṣika philosopher clearly suggests the possibility of making accessible to all individuals the knowledge of the universe of reals.

3. The Definition of Being

The introduction of non-being (*abhāva*) as an additional category into Vaiśeṣika metaphysics has resulted in the division of categories under two broad heads, *viz.*, being (*bhāva*) and non-being (*abhāva*). The notion of reality as being and non-being has, however, been subjected to severe criticism by the Vedāntist dialecticians like Śrīharṣa and Citsukha. Although their objections were put forward at a later time, and Kaṇāda or his first systematic expositor, Praśastapāda, did not anticipate them, they have been sought to be met by later philosophers of the Vaiśeṣika school. Let us examine the position in some detail.

The question is: Is the concept of *being* capable of an intelligible definition? What is it that is said to be *being*? A possible answer is that it is what is simply affirmed. But this gives only a synonym and not a definition. It may be contended

that *being* denotes the unique character or self-individuality (*svarūpasattva*) of a thing. But that also would be wrong, for even non-being has such a character or self-individuality. Moreover, *being* is a generic concept and, as such, includes all the positive categories within its scope. It is, therefore, naturally expected that its definition should be such as to be applicable to all the categories of reality, of which *being* is predicated. But self-individuality is a particularistic concept and thus fails to satisfy the exigencies of universal predication.[21]

But another definition may be proposed, *viz.*, that which admits of being judged as the subject of the predicate 'is' (*asti*) should be accounted as *being*.[22] But this will be a too wide definition, as non-being too is equally used as the subject of such predication, *e.g.*, in the proposition 'There is non-being of the jar here' (*iha ghaṭābhāvo'sti*). And the corollary of this definition is: That which is the subject of a negative judgment must be a negative fact, *i.e.*, must be non-being. But this is not the case. The proposition 'The jar is not here' does not mean that the jar *per se* is non-being.[23] Moreover, the question naturally arises: Has the predicate 'is' in such propositions any meaning, or is it only an expletive? But the meaning, if any, is not capable of being determined. It cannot be 'existence' (*sattā*), which being a universal (*sāmānya*) cannot relate to such positive categories as a universal, particularity and inherence.[24] The particularistic idea of self-individuality also cannot be the meaning, as has already been shown. The indeterminate character of the predicate thus makes the definition itself indefinite and therefore unacceptable.

Let us consider another possible definition: *Being* is that which is not the negation of another.[25] But in this definition

[21] KKK., p. 1043.

[22] *Astī 'ti pratyayaviṣayatvam.* Cit., p. 274; also *vide* KKK., p. 1043.

[23] KKKV., p. 1044.

[24] The difference between the concepts of being (*bhāva*) and existence (*sattā*) and the reason why existence cannot be predicated of some positive categories will be discussed in the next section.

[25] *Aparapratiṣedhātmakatvaṃ bhāvatvam.* KKK., p. 1046.

the expression 'of another' is meaningless. It could be significant if it excluded what is not *being*. But the word 'negation' in the definition serves the purpose. Besides, *being* and 'non-being' being mutually exclusive, even *being* is the negation of non-being and, as such, would come within the purview of the definition of non-being. For not only non-being is the negation of its opposite, but *being* also. Unless *being* negates non-being it cannot be *being*.[26] But the Naiyāyika would rejoin that this objection does not take into account the verdict of knowledge and only raises a logical spectre. What is meant is this: Non-being is understood as the negation of *being*, but *being* is *not understood* as the negation of non-being. So, from the point of view of our understanding (*pratīti*), *being* and non-being should be held to be different in nature. Although logically *being* may be regarded as the negation of non-being, psychologically it is never felt as such.[27] The sceptic, however, refuses to be disposed of so easily. He contends that even if the psychological contention be conceded, the definition still would reduce *being* to an unperceivable fiction, because our sense-organs, being devoid of discursive thought, would fail to cognize *being* as defined, *viz.*, as something which is not the negation of another. And thus even the amended definition of *being* as 'that which is not understood as the negation of another' is found to be absurd. Moreover, the proposition 'There is not the non-being of a jar on the ground' would in terms of the definition be absolutely meaningless. It cannot be maintained that in this proposition the being of the jar is affirmed, because *being* cannot be understood, conformably to the amended definition, as the negation of another. Nor can it be held to be an affirmation of non-being, for that is sought to be negated here. The Naiyāyika may seek to wriggle out of the difficulty by declaring such a proposition to be unmitigated nonsense; but that would be an unjustifiable evasion, as we certainly understand a meaning from it.[28]

[26] *Ibid.*, p. 1047.
[27] *Ibid.*
[28] *Ibid.*

The Naiyāyika, however, may contend that what the definition seeks to emphasize is this: *Being* is never *immediately* perceived as the negation of another, although a mediate knowledge of *being* as the negation of another may be left an open question. But this also makes the scope of the definition too narrow, as it does not include those cases of *being* which are beyond perception. Of course, it may be urged that the perception of *being* as spoken of in this context is not to be understood as human perception merely, but includes divine perception as well ; and divine perception is competent to envisage all kinds of *being*, humanly perceptible or imperceptible. But this is an unconvincing argument, for nobody can assert that *being* is not felt as the negation of another but simply as *being*, even in divine perception.[29] Besides, this appeal to superhuman experience is absolutely unavailing, for the task of philosophy is to understand reality as it is revealed to human understanding with all its limitations and imperfections.

It may, again, be contended that this is a perfect definition, and the objections put forward will not affect it, if the qualifying clause 'that which is not felt as the negation of another' is understood only as an index or linguistic symbol, standing apart from the concept of *being*, and not as an element in it, helping us to get at the concept of *being* to the exclusion of non-being. *Being* is, in other words, a felt fact, but it cannot be set forth simply as such, because non-being also is equally a felt fact ; and the qualifying clause in the definition serves to exclude non-being, and is meant to function as a 'pointer' (*upalakṣaṇa*), though it does not enter into the concept of *being* as an intrinsic character.[30] But to this defence the sceptic replies that, although the definition avoids the logical difficulties, it leaves the character of *being* absolutely undefined, and we are condemned to struggle for its conception without any logical help. Apart from this, the definition fails to include that idea of *being* which is arrived at from the knowledge of

[29] *Ibid.*, p. 1049.
[30] *Ibid.*

the negation of non-being. The issue may be brought home by a concrete example, *viz.*, 'There is no non-being of the jar here'. The obvious implication of the proposition is that there is *being* of the jar. The idea of *being* is here derived from the negation of non-being ; and since the definition suggested leaves it out of its purview, it is open to the charge of narrowness.

An examination of the objections of the sceptic and the apparently halting defence of the Naiyāyika will serve to emphasize the difficulty of giving a logical definition of *being*, and likewise, of non-being. But indefinability, according to the Naiyāyika, does not involve the unreality of an experienced fact.[31] However defective may the proposed definitions prove to be, there is no room for doubt that we are definitely aware of what is *being* as distinguished from what is not *being*. It is immediately felt, and no amount of *a priori* reasoning will succeed in dislodging us from our immediate consciousness of it. The various objects that come within the range of our knowledge, whether through perception or otherwise, are unmistakably felt as positive facts, *i.e.*, as things that *are*. That a thing *is not*, *i.e.*, the non-being of a thing, is equally a felt fact. When we say we do not perceive a jar, we are aware of the non-being of the jar. Again, when we perceive a jar on the ground, we are immediately aware of its *being*. The perception of a jar as something which is neither *being* nor non-being is an impossibility, for such a jar is indistinguishable from pure nothingness.

So, if we are to formulate a definition of *being*, we cannot hope to succeed without an appeal to our experience. And this experience should be carefully narrowed down in its scope so as to exclude the experience of non-being. A later Vaiśeṣika writer, Padmanābha, therefore, defines it as 'the subject of a judgment which is not cognizant of non-being as its subject'.[32] In the judgment 'there is non-being or absence of the jar', the subject is non-being, and though the jar is a *being*, it is felt

[31] *Anirvācyam apy anubhūyamānam aśakyāpahnavam.* NVTT., p. 455.

[32] *Abhāvāviśeṣyakadhīviśeṣyatvasya lakṣaṇatvāt. Setu* (ed. CSS.), p. 115.

as a determination of non-being and is not independently the subject. But in the judgment 'the jar is', the jar is felt as *being, i.e.,* as a positive fact. So the subject of a judgment which does not refer to non-being as its independent subject will always stand for *being, i.e.,* a positive real.

It is true that Padmanābha's definition of *being* cannot be said to be strictly logical, because it presupposes a notion, *viz.,* that of non-being, which is yet undetermined and which cannot possibly be determined independently of the notion of *being.* But the failure of a logical definition does not necessarily involve the frustration of the object for which the definition has been formulated. Our experience provides us with many indefinable reals. The chief merit of Padmanābha's definition lies in its emphasis upon the necessity of an appeal to experience. In the ultimate analysis, *being* or positivity (*bhāvatva*) as a character of the real transpires to be what is felt as such. The same may be said of non-being or negativity (*abhāvatva*). They are ultimate simples, and any attempt to analyse them in simpler terms is, by its nature, bound to prove futile. Some later Naiyāyikas have admitted it at least in the case of non-being (*abhāvatva*) which, according to them, is an unanalysable characteristic (*akhaṇḍopādhi*) of reality.[33]

It is refreshing to note that a somewhat similar view has been expressed by McTaggart on the problem under consideration. He has definitely asserted that *being* or existence is indefinable.[34] He does not, however, admit the difference between *being* and existence and holds them to be identical. The logical necessity which has led the Vaiśeṣika to differentiate existence (*sattā*) from *being* (*bhāvatva*) is explained in the next section.

4. Existence and its Relation to the Categories

Existence (*sattā*) is admitted as the cause of the identical concept (*anugatabuddhi*) by means of which the categories of

[33] *Abhāvatvañ ca bhāvavyāvṛttākhaṇḍo dharmaviśeṣaḥ.* Mathurānātha's commentary on TC. (ed. BI.), vol. I, p. 175.

[34] *Vide* McTaggart : *The Nature of Existence,* Vol. I, p. 5.

substance, quality and action are brought under one head. All these categories are felt as existent (*sadbuddhiviṣaya*), and this would be absolutely meaningless unless the concept of 'being existent' could be affiliated to a common objective ground. What can be the common character of all these different existents? It cannot be anything else than existence itself.[35] Existence, therefore, must be admitted as an objective fact. It is recognized as the highest universal, as it serves to unify all existents under one class-concept. Existence as a universal thus relates only to substance, quality and action. The other positive categories, *viz.*, universal, particularity and inherence, cannot be participants of this universal, in spite of the fact that they are not non-existent (*abhāva*). The first three categories are held to be existent by reason of the universal of existence belonging to them through the intimate relation of inherence.[36] There are, however, serious logical objections to the inherence of existence as a universal in the remaining three positive categories. A universal cannot qualify another universal, because that would inevitably lead to an infinite series. A universal also cannot be related to particularity, for in that case, particularity would cease to function as the basis of differentiation. Nor can a universal be attached to inherence, for that would mean the inherence of the universal in inherence, and the inherence of the universal would require another inherence to relate itself to the universal, and so on *ad infinitum*.[37] But in spite of the logical difficulties standing in the way of their relation to existence, these categories are felt and judged as existing facts (*sadbuddhiviṣaya*). One may say that they have subsistence and not existence. But the problem is not solved by the invention of a new nomenclature. Existence and subsistence are *not felt* as different. All positive categories present themselves to our consciousness as existents, as things that *are*.

[35] *Sad iti yato dravyaguṇakarmasu sā sattā.* VS., I. ii. 7.

[36] *Sattayā sāmānyena sambandhaḥ samavāyarūpo dravyaguṇakarmaṇāṃ sādharmyam.* NK., p. 17.

[37] NK., p. 19; KV., p. 31.

The question naturally arises as to how the categories which do not participate in existence can be felt as existent. In other words, how can their factual unrelatedness to existence be compatible with our conscious reference to them as existent facts? Śrīdhara explains the anomaly by suggesting that the existential character of the universal, particularity and inherence is not a natural or intrinsic determination. Each of these three categories has a self-being (*svātmasattva*), *i.e.*, a being which is self-sufficient and independent of relation to existence.[38] This self-being or self-individuality is from its very nature a particularistic concept and is, therefore, different from the universal of existence to which all existents are affiliated. Our thought somehow fails to take account of this difference when we think of these categories, and consequently we attribute to them a character which does not really belong to them.[39] The existential character, therefore, is not an intrinsic determination so far as these three categories are concerned ; it is an imposed (*āropita*) or transferred character, and this imposition or transference is possibly inspired by a subjective necessity to put together under one head all such reals as are not negative in character.

An attempt has, however, been made by later Vaiśeṣika writers to find a common objective ground for the synthesis of all the six positive categories. The first three categories are possessed of existence directly by means of inherence. The universal and particularity are indirectly qualified by existence, being co-inherent with the latter in a common substratum (*ekārthasamaveta*). As regards inherence, though it cannot co-inhere with existence, it co-exists with the latter in the same substratum (*ekārthavṛtti*).[40] These three categories, therefore, constitute a separate group, since they are held to possess existence through a relation other than that of direct inherence.

[38] NK., p. 19.

[39] *Sāmānyādiṣu sat sad ity anugamaḥ svarūpasattvasādharmyeṇa sattādhyāropāt. Ibid.*

[40] *Dravyādau samavāya eva sāmānyaviśeṣayor ekārthasamavāyaḥ samavāye ekārthavṛttitvaṃ sambandho'sty eva.* KVBh., p. 44.

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If, therefore, in spite of this difference in their relation to existence all the categories are felt as existent, the explanation lies in the fact that the character of being or positivity (*bhāvatva*) implies nothing more than some sort of positive relation to existence, either direct (as in the case of the first group), or indirect, *i.e.*, through a common substratum (as in the case of the second group).[41]

It thus appears that being or positivity is a wider concept than existentiality and that there are categories of being which are not directly related to existence. The differentiation between the two groups of positive categories has been found to be due to a logical necessity. And the same logical necessity has led to the terminological difference, *viz.*, subsistence and existence, though psychologically the difference is not felt.

But the difference between the two groups of categories is not merely logical ; it is functional as well.[42] According to the Vaiśeṣika, whatever is contingent or destructible, whatever is capable of producing merit or demerit (*dharmādharmajanaka*) and thus admits of being judged as right or wrong, must necessarily be an existent (*sattāsamavāyin*) fact, *i.e.*, a substance, a quality or an action ; for the categories of the second group are all eternal entities, absolutely non-moral in character.[43] Again, the categories of the first group are found to be causal with reference to both subjective and objective facts. They are the causes not only of the knowledge about themselves but also of events in the objective order. The second group, on the contrary, can exert causality only with reference to a class of subjective facts. The universal is the ground of the notion

[41] Din., pp. 40-41.

McTaggart seems to deny the difference between being and existence on the same logical ground. In his view, as the subsistent reals are found as elements in the existent, they should be regarded as existent.

[42] Kaṇāda accords the status of *artha* to the first three categories only (VS., VIII. ii. 2), suggesting possibly that the other categories have an extremely limited function in the scheme of reality.

[43] NK., p. 17; YUp., I. i. 8.

of identity (*anuvṛttabuddhi*) ; particularity, of the notion of exclusion (*vyāvṛttabuddhi*) ; and inherence, of the notion of a constitutive locus (*ihabuddhi*). These notions are the only facts with reference to which the categories of the second group can be held to be causes, and thus they constitute the only proof of the existence of those categories.[44]

Some modern exponents of the Vaiśeṣika system think that since there is admittedly no proof of the existence of the categories of the second group outside our ideas of them, they must be supposed to have no existence other than that which they derive from those ideas. In other words, they must be held to be purely logical or conceptual constructions of the mind. But this is certainly a gross misrepresentation of the Vaiśeṣika position. Considering the fact that the Vaiśeṣika is a thoroughgoing realist believing firmly that each of our ideas corresponds to something real outside itself, we are bound to recognize the objective reality even of the categories other than those of the first group. In fact, so far as objective reality is concerned, the categories of both the groups stand definitely on the same level.[45]

[44] KV., p. 30.

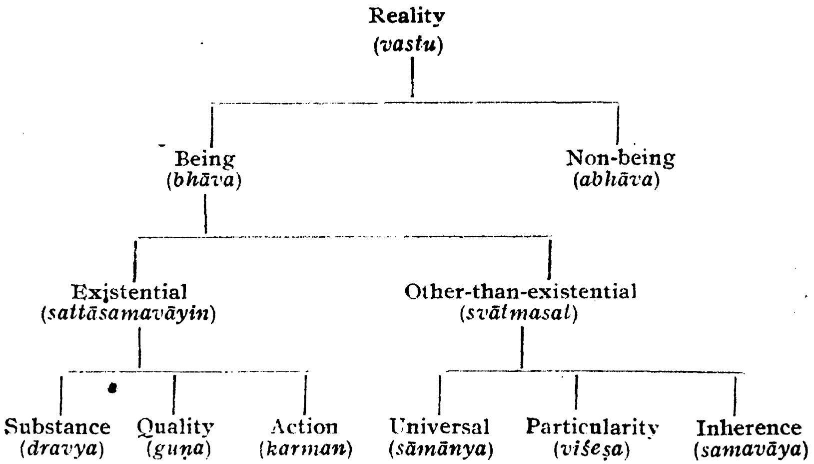
[45] It should be noted here that the *sūtra* '*sāmānyaṃ viśeṣa iti buddhyapekṣam*' (VS., I. ii. 3) has been wrongly taken by some scholars to indicate that the universal and particularity are logical categories depending for their very being upon our thought (*buddhyapekṣa*). The true significance of the *sūtra* is, however, as follows: A universal (which, in the Vaiśeṣika view, is, like other reals, a fact existing extra-mentally) may be viewed either as a generic character (*sāmānya*) or as a specific character (*viśeṣa*). Whether it is one or the other depends entirely on how we conceive the universal. Potness (*ghaṭatva*), for instance, is a universal. It may be conceived as a synthetic principle assimilating all individual pots under an identical mode of being, or as a differentiating characteristic which belonging to pots alone distinguishes them from things that are not pots. In the former case, potness is judged as a generic character, and in the latter case, as a specific character. There is, therefore, nothing in the *sūtra* in question to suggest that the categories of universal and particularity are, according to Kaṇāda, logical entities. The term *viśeṣa* in the *sūtra* thus stands for a class-character viewed as a differentia, and

To complete the account of causal efficiency as a characteristic of reals, it is necessary to observe that it is not the positive categories alone that can exercise causality. Non-being (*abhāva*), although characterized by negation of being, is supposed to possess causal efficiency just as much as any of the categories of being. The non-being or absence of a physical obstruction, for instance, not only gives rise to an idea about it in our mind, but is also a necessary condition of free movement. In fact, it is this causal function which distinguishes non-being from mere nothingness and entitles it to be recognized as a category of reality.[46]

should be distinguished from *antyaviśeṣa* which is the term used by Kaṇāda to denote the category of particularity.

[46] NKu., pt. I, pp. 101-102.

The classification of the Vaiśeṣika categories is shown in the following table:—



CHAPTER II

SUBSTANCE

1. Introduction

The universe is conceived by the Nyāya-Vaiśeṣika realist as primarily comprising an infinite number of independent substantive reals—the substances. The substances have the capacity of possessing qualities or actions and getting characterized by them. The individual substances, again, are unified and arranged into definite groups through the operation of synthetic principles known as universals. Some of the substances are simple and apparently indistinguishable; they admit of being distinguished because they have their respective ultimate differences called particularities. Qualities, actions, universals and particularities are no doubt distinct realities, but they all have their locus in the substances in which they subsist through the relation of inherence,[1] this relation being also supposed to be a distinct entity apart from the terms that it relates. Substance, therefore, may be said to occupy the central position in the Nyāya-Vaiśeṣika scheme of the universe as an organized system of reals.

But what is substance, and what is the logical necessity for its postulation? These are questions which must be answered if we are to make out a case for its acknowledgment as a category.

Kaṇāda defines substance as 'that which possesses qualities and actions, and is an inherent cause'.[2] Substance has obviously been conceived in this definition as the substratum (*āśraya*) or the repository, as the abiding ground, of qualities and actions.

[1] Universals, according to the Vaiśeṣika, have their locus not only in substances, but also in qualities and actions, *e.g.*, 'colourness' (*rūpatva*) in all colours, and 'goingness' (*gamanatva*) in all particular acts of going.

[2] VS., I. i. 15.

We find that our thought instinctively seizes on two different aspects of reality, that which is presented to our senses, the sensible qualities ; and that which sustains these qualities in their existence, the substance. The colour, the form, the sound and the other qualities that we perceive cannot be imagined by us to float as 'homeless attributes of nothing' ; we are obliged to refer them to something which holds them and is their abiding ground. This notion of the abiding ground gives us the substance.

2. Objections to the Reality of Substance Analysed and Answered

Some Buddhist philosophers, like the phenomenalists of Europe, have denied the existence of substance and have employed almost identical arguments in their refutation of this category.[3] They hold that there is no independent entity behind and beyond the sensible attributes.[4] Our knowledge is confined to qualities. We perceive a particular touch associated with a particular colour and configuration, but we are never aware of anything which possesses these qualities. The notion of a substance (*e.g.*, a jar), as a single entity comprising these qualities, is only a figment of the imagination.[5] There is even no pragmatic justification for the supposition of substance. When one says that one has enjoyed a mango, all that is meant is that he has perceived certain qualities, *viz.*, sweetness, flavour, etc. It is to these perceived qualities alone that his interest is confined, and it is by them that his object is completely served. Substance, therefore, is only an unnecessary and superfluous assumption.[6]

The idea, further, of a self-identical and unitive principle which exists in and through the different parts and which appropriates the diverse sensible attributes is logically un-

[3] Vide TS., verses 564-572, and *Pañjikā* thereon.

[4] TSP., on verse 556.

[5] VV., pp. 44.

[6] ATV., p. 720.

justifiable.[7] The Buddhists argue : What is the relation of this unitive whole (*avayavin*) to the different parts which are supposed to belong to it and to constitute it? Does it exist in its entirety, or through its parts, in the very parts that constitute it? No other kind of relation is logically conceivable. In the second alternative, the unitive whole will be a composite, and as such, will have parts of its own apart from what it is supposed to inhere in. But the second set of parts will stand to the whole in the same relation as the first set, and this involves a third set of parts, and there will be no end of it,— a conclusion which is absurd on the face of it.[8] In the first alternative, the unitive principle must be supposed to exist either exhaustively in each part, or collectively in all the parts. In the former case, the whole will not be present in the other parts, which is tantamount to the denial of the separate existence of the whole apart from its parts ; for each part exhausting the whole within its limit will hang apart from the other parts, and so there will be nothing to unite them.[9] If it is supposed that the whole exists in all its parts, then the question will arise as to whether the whole bears the same relation to each of the parts, or the relation varies with the variation of individual parts. In the former supposition, there will be nothing to distinguish the parts from one another, and so they will be reduced to a unity, with the consequent annulment of their plurality. In the latter hypothesis, the result will be equally unsatisfactory, as the whole will be supposed to suffer change of its character with the change in its manner of relationship. This means that the whole will be many, instead of one.[10] Moreover, the parts in the ultimate analysis will vanish like the whole if they are supposed to be self-existent entities independent of the qualities that appear in and over them. To be explicit, the parts cannot function as diminutive wholes con-

[7] For a detailed exposition of the Buddhist view *vide* chapter XI.

[8] TSP. on verse 613.

[9] *Ibid.* on verse 608.

[10] VV., p. 44.

stituting a major whole which is called a substance. In other words, if the parts be supposed to play the part of so many substances, they will be exposed to the selfsame difficulties. So the so-called substance must be held to be a mere conglomeration of sensible qualities beyond and behind which we cannot postulate an abiding principle as their supporting ground, without incurring logical absurdities.

The Nyāya-Vaiśeṣika realist is not nonplussed by this dialectical flourish of the Buddhist philosopher. The verdict of our intuition and reflective thought arising in its trail is obviously and undoubtedly in favour of the existence of substance. A universe of mere successions and co-existences (*kramayaugapadya*) of unattached qualities is simply unthinkable. The Buddhist contention that substance is nothing but a conglomeration or succession of evanescent attributes is also logically indefensible. If a jar were nothing but an aggregate (*samudāya*) of touch and colour, then these two qualities being cognizable by two separate organs without mutual consultation, unreflective that they are, the reference of the two qualities to a common substratum (*āśraya*) would be impossible.[11] As a matter of fact, our experience invariably manifests itself in the shape of a synthetic judgment comprising the two items delivered by two separate organs in one whole. We judge, 'the jar that I have touched is the same as what I see'. How can these two acts of touching and seeing refer to one and the same thing, unless the two sensible qualities are supposed to co-exist in one substratum? The judgment in question cannot be brushed aside as an intellectual illusion inasmuch as it is certainly perceptual in character ; and it follows the presentation of the objective fact, just as much as the two acts of perception do. Besides, the illusory apprehension of an object is possible only if there is a veridical perception of the same object at its

[11] *Yuktir api darśanasparśanayor ekaviṣayatvena pratisandhānam.* NV., I. i. 14, p. 75.

Cf. *Na ca dvābhyām indriyābhyām ekārthagrahaṇaṃ vinā pratisandhānaṃ nyāyyam.* VV., p. 44.

back.[12] For instance, even an ordinary illusion as the mistaking of a rope for a snake is possible only for a person who has had previous experence of a snake. It is for this reason that nobody perceives a seventh taste even in error, as there is no such thing and consequently no such experience. And, if this account of illusion be admitted, the reality of substance cannot be denied. Moreover, there is absolutely no reason to deny the validity of this synthetic judgment, as it is not contradicted by a subsequent experience. So, it must be admitted that the synthetic judgment is possible only if the two organs directly cognize the substance together with the relevant sensible qualities.

Furthermore, if the perceptum be supposed to consist of sensible qualities alone, without an underlying ground called substance, then the knowledge of identity in spite of the change of qualities would be unaccountable.[13] The unbaked jar is black, but it becomes red when it is baked in a furnace. The cessation of blackness does not entail the cessation of the old jar, nor does the emergence of redness involve the creation of a new jar, as we directly perceive the jar as an identity persisting in and through the change of qualities. The jar is articulately felt to be distinct from the evanescent qualities, and so its self-identity, unaffected by the modifications that occur in it, is certified by undisputed perception. Thus the two judgments, 'The jar is black' and 'The jar is red', have the same subject with different predicates.[14]

We have found that the Buddhist's attempt to resolve substance into a group of qualities runs counter to our notion of identity as revealed in the synthetic judgment which predicates the different qualities of a self-identical principle. A

[12] *Yatra te mithyāpratyayā loke bhavanti sarvatra te samyak-pratyayānukāriṇo bhavanti.* NV., I. i. 14, p. 77.

[13] SD., p. 42; SV., *pratyakṣasūtra*, verses 151-152.

[14] This argument for the reality of substance can be advanced by the Naiyāyika and the Mīmāṃsaka, but not by the Vaiśeṣika, according to whom, the baked jar is different from the unbaked one, though constituted of identical atoms.

jar, for instance, is empirically given as a *single* thing having *many* qualities ; it is not intelligible in terms of its qualities, *viz.*, colour, touch, etc., for these qualities are obviously *many* and cannot be reduced to a *unity*. The qualities cannot be identified with one another. Colour is not touch, because they are sensed by different organs. It cannot be said that it is the same quality which when visually perceived is colour, and when tactually perceived is touch. A blind man certainly does not tactually feel the same quality which appears as colour to those who can see. When, therefore, it is said of a thing that it is seen and touched, it does not mean that the qualities of colour and touch are identified, or that one quality is predicated of the other.[15] Nor can the qualities taken *together* be regarded as the object. What is meant by the 'togetherness' (*samudāya*) of qualities, and how can it be possible? Are the qualities found in one place, or at one time? Or, is their togetherness inferred from their having a common effect, or a common cause? The qualities are certainly many, and are different from one another. The question is: What is the cementing bond that holds them together? That the different qualities have different causes must be admitted even by the Buddhist. Colour is the effect of one thing, and touch of another. If both of them could have a common material cause and thus a common substratum (*upādānarūpaikadeśa*), they could be supposed to hold together. But this common substratum would in that case be nothing but the substance, which is sought to be denied.[16] Nor can colour and touch, two contrary qualities, be affiliated to a common (non-causal) spatial locus, say a part of the ground-surface. There is no substance according to the Buddhist ; it is always a case of togetherness of qualities. Even if colour and touch be bound by a relation of togetherness, we have certainly no means of knowing them to be so. The jar as perceived by the eye is nothing but colour, and so also the

[15] ATV., p. 712.
[16] *Ibid.*, p. 715.

ground-surface. Thus, as visually perceived, the jar on the ground-surface can only be regarded as colour resting on another colour. As apprehended by the tactile organ, it is nothing but touch resting on another touch. But the two, the colour and the touch, cannot be perceived as in one locus, as they are never perceived together. So the idea of togetherness cannot arise if they are held to be different and contrary in nature.[17] Nor can togetherness be due to their belonging to the same time, that is to say, to their synchronism. The different qualities cannot be perceived synchronously by the different organs which operate only in succession. So synchronism cannot be the ground of their holding together. Even if synchronism were a fact, that would not be the ground of their togetherness. An ass and a camel, though synchronously perceived, do not form an aggregate (*samudāya*). Thus colour and touch, even if perceived synchronously, cannot be an aggregate. If the perception of difference between the ass and the camel be proof of their discreteness and thus stand in the way of their being held together as an aggregate, the same reason holds in the case of qualities also which are admittedly felt to be different.[18] Nor can they be regarded as an aggregate on the ground of their producing a common effect, for colour cannot have the same effect as touch. It may be urged that colour and touch have at least a common causal efficiency in that they serve a common purpose (*ekārthakriyākārin*) ; for the function of holding water (which is exercised by a jar) is a definite result that is ascribable as much to colour as to touch. But this is straining the principle of causal efficiency rather too far. Moreover, water itself, on the Buddhist view, is no unit, but a plurality of discrete qualities. How can a single quality like colour or touch serve as the container of what is admittedly a plurality of qualities? Nor can colour and touch jointly be regarded as the container, for this assumes that they form an aggregate, which is still unproved. By a more or less similar argument it can be shown that an aggregate of qualities

[17] *Ibid.*
[18] *Ibid.*, p. 717.

cannot be explained by reference to a common cause.[19] If, therefore, the idea of unity has to be affiliated to something different from the qualities, that gives substance.

The Buddhist may contend that a plurality of contrary facts can be supposed to be held together in a unity only if there be a relation between them. But such relation is impossible to determine. If the qualities cannot be related to one another, as has been made out by the realist in the previous arguments, they cannot be related to a substance either.[20] The qualities, in the Nyāya view, are predicated of the substance. But the meaning of 'predication' is unintelligible. Sugar is said to be sweet, hard and white. What is the meaning of 'is'? It cannot be identity. Sugar is not sweetness. If it were, it would not be hardness or whiteness, each of the predicates being different from the rest. Nor can the relation between sugar and its qualities be one of 'otherness', since that would fail to account for the fact of predication. The jar is other than sugar but is never predicated of it. So otherness cannot be the ground of predication. It is found that the quality which is predicated of sugar is neither identical with, nor different from, sugar. What is, then, the relation? Certainly things which are different can never be brought together without a relation. A quality without relation is unintelligible.[21] Udayana in reply to this contention of the Buddhist observes that if the relation in question cannot be understood in terms of identity or otherness, or of a combination of them because of obvious contradiction, the only alternative left to us is to suppose that there is no relation at all. But, then, how is it that they are felt as related? One may answer that it is their nature to come into existence in association with each other and thus to give rise to a notion of relatedness, just as it is in the case of the body and consciousness according to the Buddhist.[22] But this explanation

[19] *Ibid.*, pp. 718-719.

[20] *Guṇasamavāyād dhi guṇī bhavet, sa eva tu nā 'sti.* ATVS., p. 721.

[21] *Vide* Bradley: *Appearance and Reality*, chapter II.

[22] *Kathaṃ tadvat pratīyata iti cet, teṣāṃ tatho'tpādāt.* ATV., p. 720.

does not solve the question of relation, although it avoids the dialectical difficulties that make a relation impossible. It must be admitted that logical predication which implies a notion of relatedness is impossible without an actual relation. A relation between substance and qualities has, therefore, to be posited, and this relation is called by the Naiyāyika, inherence (*samavāya*). And if it refuses to be resolved into any other simple relation as identity or otherness, it should be regarded as equally simple with either of them. Moreover, if you attempt to reduce this relation to identity, it would only result in the denial not only of substance but also of qualities. Nor is there any reason why a quality and a substance should be held to be identical. If the identification of substance with qualities be made the ground for liquidating substance, the quite opposite result can also with equal plausibility be deduced from it. One can do away with qualities and make substance the only reality. If the existence of qualities is sought to be asserted on the evidence of experience, the same logical necessity can be pressed in favour of substance also, as both substance and qualities are equally felt as moments of our empirical judgment.

The Buddhist argues that since substance and qualities are felt together as a matter of necessity, they must be supposed to be identical.[23] But apart from the question whether synchronous perception is proof of identity at all, such perception cannot be maintained even as a fact. At any rate, the synchronism is not mutual. When, for instance, a conch is mistakenly perceived as yellow, its whiteness is not perceived. Thus the conch is perceived though not its whiteness. This shows that the perception of the substance is independent of that of its quality.[24] The Buddhist may contend that the perception is here an unqualified illusion, and so it does not prove that the conch is perceived independently of its colour. But there is verification of the conch by means of touch and also by the pragmatic test. The sound that is normally associated with conchs is found to be

[23] *Guṇī guṇābhinnaḥ sahopalambhaniyamāt.* ATVS., p. 722.
[24] ATV., p. 722.

produced by this particular one also. So its presentation with an altered colour is no proof of its illusoriness. It should be maintained in conformity with the data of experience that there is no mistake so far as the substantive element, *viz.*, the conch, is concerned, though the perception of yellowness is wrong.[25] It has, however, been contended that the possession of the quality of whiteness being the necessary condition of the very existence of the conch, the absence of the former would entail the absence of the latter. The Naiyāyika replies that if the suggested concomitance is thought to hold between the quality and the substance, he is agreed. But there is no necessary relation between their perceptions. The non-perception of the condition (*vyāpaka*) does not entail the absence either of the concomitant (*vyāpya*) or of its perception.[26] The non-perception of fire, for instance, does not argue the absence of smoke, or of its perception. So, though whiteness be regarded as the necessary condition of the conch, that is, though there cannot be a conch which is without whiteness, the non-perception of whiteness would not necessarily imply the absence of the conch, or even its non-perception. It may still be maintained that though the perception of the substance may not be dependent upon that of its quality, the perception of the quality at any rate is possible only when the substance is perceived. This synchronism proves that the substance and the quality are not different. But such concomitance of two perceptions, the Naiyāyika replies, is only one-sided and not reciprocal (*asama*), and, therefore, cannot be a proof of identity of existence. An object is seen only when there is perception of light. But though the perception of light and that of an object are necessarily found together, they are not identical. For exactly the same reason co-existence (*deśāviccheda*) of substance and quality cannot be pressed forward as proof of their identity. Substance and quality may be cognized synchronously on account of the necessary concomitance of their conditions of perception ; and

[25] *Ibid.*, pp. 723-724.

[26] *Na ca vyāpakānupalabdhimātreṇa vyāpyatadupalabdhī nivartete. Ibid.*, p. 724.

their co-existence may be similarly due to the concomitance of their conditions of production. Thus there is no incompatibility if substance and qualities are numerically different and are at the same time co-existent, or objects of synchronous cognitions.[27]

It has been further contended by the Buddhist that what the Naiyāyika calls the sense-perception of substance is nothing but a subjective construction. If the sense-organs are competent to cognize the substance, then why is it that the substance is not cognized at the very first moment, *i.e.*, at the time the indeterminate (*nirvikalpaka*) perception takes place? The indeterminate perception is, according to the Buddhist, the only valid perception, because it contains no conceptual or ideational element in it (*kalpanāpoḍha*). Such perception immediately follows the sense-object contact and apprehends the object in its unique, individual character (*svalakṣaṇa*), *i.e.*, as free from association with name, class-character, etc. (*nāmajātyādyasaṃyukta*).[28] The idea of substance enters into determinate (*savilkalpaka*) perceptual knowledge only after a recollection of the class-concept by means of a name has taken place. In other words, when the perceptual content is determined and distinguished by a linguistic symbol, and is thus subsumed under a class-notion, which is purely an intellectual act (*kalpanā*), that the idea of substance emerges in our thought. To be precise, as the idea of substance is always delivered in the form of a determinate knowledge, the sense-organ cannot be responsible for it. So the notion of substance cannot be derived directly from sense-perception, and is only a conceptual construction (*vikalpa*), having nothing corresponding to it in the objective world. The Buddhist philosopher here seems to have anticipated Kant in giving out this category as the contribution of the understanding and in regarding sense-perception as cognizant of only unrelated and unique particulars.

The Nyāya-Vaiśeṣika philosopher admits the analysis of the perceptual operation given by the Buddhist, but maintains

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[27] *Ibid.*, pp. 725-726.

[28] *Nyāyabindūṭīkā* (ed. CSS.), pp. 11-16.

that the premisses do not lead to the suggested conclusion as the only inevitable consequence. It is true that in the first instance the perceptual knowledge is indeterminate, and it is expressed in the form of a determinate judgment only after the verbal association has taken place. But this does not detract from its sensuous character, for the content of determinate knowledge, according to the Naiyāyika, is solely determined by that of indeterminate perception.[29] If the determinate knowledge which is felt as perceptual be discredited as a proof of the reality of its object, why is it not placed in the same category with imaginary constructions? Certainly, one automatically feels the difference of a perceptual judgment ('I *perceive* a jar' or 'there *is* a jar') from a judgment of imagination ('I *imagine* the jar is there'). One is believed to be true, and the other is not so believed. This difference of character can be accounted for only if we suppose the former judgment to be directly conversant with reality; and this can be possible only if the sense-organ continues to function.[30] The recollection of a name is only one of the requisite conditions which together with the operation of the sense-organ are responsible for the materialization of the perceptual judgment.[31] As for the contention that the sense-organ cannot function continuously for so long, the Naiyāyika points out that the judgment in question does not take place if the sense-organ is inoperative. For instance, we cannot have a determinate visual judgment even by the recalling of the name if we shut up our eyes immediately after the sense-object contact.[32] This proves that the sense-function is a necessary condition of even determinate perceptual knowledge. So, there is no ground for disbelieving

[29] *Tasmād ya eva vastvātmā savikalpasya gocaraḥ|*
sa eva nirvikalpasya śabdollekhavivarjitaḥ||
NM., pt. I, p. 92.

[30] *Manorājyavikalpānāṃ kāmam astv apramāṇatā|*
yathāvastu pravṛttānāṃ na tv asāv akṣajanmanām||
Ibid., p. 90.

[31] *Ibid.*, p. 89.

[32] *Na hi vācakasmaraṇānantaram akṣiṇī nimīlya vikalpayati paṭo 'yam iti.* NM,. p. 89. *Cf.* SV., p. 174, verse 128.

the objective validity of this knowledge, and consequently for impugning the objectivity of substance, as the knowledge of it is directly derived from the objective datum.

The contention that substance being a unitive whole must be related to its parts, and this relation can neither be one of total, nor one of partial, extension, has been elaborately discussed and finally disposed of by the Nyāya-Vaiśeṣika philosopher.[33] It has been pointed out that relation is not a *conditio sine qua non* of being.[34] There may be self-subsistent entities. The Vaiśeṣika philosopher admits that eternal substances are self-subsistent ; that is to say, they are not dependent upon anything else either for their being, or for their functioning.[35] Even the Buddhist believes that things are self-subsistent, self-characterized (*svalakṣaṇa*) and unrelated reals, and that relations are only ideal constructions (*vikalpa*) having no objective reality.[36] So, even if no relation can be made out, this will not stand in the way of a substance being objectively real. Of course, as regards substances which are products, the question of a relation naturally comes in. The relation in question is neither one of partial, nor one of total, extension, but stands *sui generis*. It is not conjunction (*saṃyoga*), and so the incidents of conjunction are not capable of being extended to it. The relation is called inherence (*samavāya*) which is not an accidental relation, but is bound up with the relata by its very constitution. This distinct kind of relation has to be postulated, as the whole and its parts are perceived as distinct entities, and as the well-known relation of conjunction fails to meet the exigencies of the situation.

The sceptic, however, raises another objection in connection with the relation of inherence. He argues : If inherence is called for to bring into connection the two terms, the whole and its part, it being a third entity requires, in its turn, to be related to those terms by another relation. This second relation, again,

[33] *Vide* chapter XI.
[34] *Na ca parasya vṛttyā sattvaṃ vyāptam.* VV., p. 46.
[35] *Āśritatvaṃ cā 'nyatra nityadravyebhyaḥ.* PPBh., p. 16.
[36] *Svayaṃ tāvat kasyacit kvacid vṛttir asiddhā Śākyānām.* NK., p. 42.

will similarly require a third relation to relate itself to the relata, and so on to infinity. So, the postulation of inherence as the connecting link between the terms (*i.e.*, between the whole and its parts) is only a make-believe. The Vaiśeṣika philosopher observes in reply that this doubting of a relation is based only on abstract considerations. The sceptic must admit either that there is a relation or that there is not. If the situation cannot be met without the positing of a relation, the difficulty of defining the nature of the relationship of the relation to the terms need not deter us from affirming the same. The fact of the matter, according to the Vaiśeṣika, is that this relation is not externally related to the terms ; it is related to them by itself, by its very nature. The relation between inherence on the one hand, and either of its terms on the other, is thus not an additional entity, but is found, in the ultimate analysis, to be constituted by and grounded in the very nature of the relata (*svarūpasambandha*).[37] To think that the relation of inherence should stand in need of a separate relation to relate itself to its terms is certainly due to an unwarranted logical bias fostered by the experience of the behaviour of the relation of conjunction. Conjunction is a quality as well as a relation. As a quality it subsists by the relation of inherence in its substrates which are also the terms that it holds together in the capacity of a relation. Inherence, on the other hand, is not anything but a relating principle that binds the terms inseparably together. Its nature, therefore, cannot be determined on the analogy of conjunction. And no argument conceived on the basis of this analogy can invalidate the factuality of the relation of inherence.

As we have seen, the whole subsists in its parts by the relation of inherence. This relation being altogether of a distinct nature, the question of total or partial extension raised by the Buddhist is absolutely irrelevant. There is, therefore, no logical ground for ignoring the undisputed testimony of our common experience which invariably delivers

[37] *Samavāyasya vṛttyantaraṃ nā 'sti, tasmād asya svātmanā svarūpeṇai 'va vṛttir na vṛttyantareṇa. Ibid.*, pp. 329-330.

substances as *composites* possessing qualities and consisting of parts.

3. The Definition of Substance

(a) *Is Substance definable?*

The logical necessity of postulating substance as a distinct category apart from the qualities has been discussed, and the objections of the Buddhist philosopher have been examined in the previous section. It may naturally be asked whether it is possible to formulate a definition of substance, which will include within its scope all varieties and types of things known as substance. In other words, is a definite conception of substance possible? To be explicit, what is the common feature in things called substances by the Vaiśeṣika philosopher? The difficulty of the problem may be realized from the fact that the notion of substance applying to such impalpable entities as time, space and soul down to such tangible material bodies as a log of wood and a slab of stone, is not found ready-made in the popular estimation. How can all these different existents, liquid, hard, amorphous, material and spiritual, be put under a unitary class-concept?—is a problem that cannot be solved by an appeal to a commonsense estimate of things. An ordinary unthinking man of the world cannot be expected to have a conception of substance wide enough to comprehend all these varying types under it. Nor, again, can the enlightened convention of philosophers be proof of the possibility of such a concept, because the convention of one school is found to be irreconcilably at variance with that of another. The Mīmāṃsaka, for instance, is persuaded that darkness (*tamas*) is a substance, and the Vaiśeṣika is equally convinced that it is only the negation of light, and not at all a substance. So, neither the popular, commonsense view of things nor the philosophical interpretation of them can be relied upon to throw light on the essential nature of substance, which is universally present in all substances known to us.[38] If one

[38] *Na hi laukikaparīkṣakasādhāraṇī dravyākārānugatamatiḥ . . . . . . paravipratipattyā vā sandehas tatra.* NLVK., p. 89.

cannot successfully find out a general definition of substance *answering to a correct conception of it, the logical necessity of admitting substance as a category will not be established* on an incontestable footing, although the untenability of the Buddhist position demonstrated in the foregoing section may create a presumption in its favour. The question is beset with difficulties, and sceptics and idealists alike have taken infinite pains to expose the weakness of all attempts at a definition of substance as a category. We propose to deal with the various definitions suggested by different thinkers of the Nyāya-Vaiśeṣika school and to critically evaluate the criticisms of the opponents.

(*b*) *Substance as the Self-subsistent Real*

The theory of substance conceived as distinct from attributes, and as something in which the attributes inhere, has been, as we have already seen, severely attacked by the Buddhist phenomenalists. The problem of the conception of substance has, therefore, been approached from a different angle by Śrīdhara. Substance, according to him, apparently, means more than merely something which has qualities. It means, above all, something that is felt as self-subsisting, something that exists in its own right. For a definite idea of substance it is necessary that there should be posited a synthetic concept of substancehood (*dravyatvajāti*) to which all specific substances can be affiliated on account of their possession of some fundamental common character. But no community of nature, apparently, subsists between a lump of clay and a lump of gold, both of which are supposed to be substances.[39] Water is never recognized as having a sameness or even similarity of nature with fire. Yet substancehood is supposed to inhere in both of these. What is the common character of these specific substances through which substancehood reveals itself and makes itself intelligible to us? Śrīdhara answers that the notion of substancehood is arrived

[39] Cit., p. 179.

at through a notion of self-subsistence.[40] A particular substance may have qualities and actions widely divergent from those of another substance, and may, for that reason, look very much unlike the latter. But this does not affect their essential similarity of character based on the fact that every substance is felt as self-subsisting, as compared with its qualities and actions which cannot be supposed to exist without being supported by something that exists in its own right, that is, by substance. In other words, while qualities and actions exist and are intelligible only in relation to substance, the latter is felt as existing independently of any foreign reference.

This view of substance has been severely criticized by Citsukha. He asks: What is this self-subsistence that is supposed to be the criterion of substancehood? Is self-subsistence (*svātantrya*) equivalent to existence without a substratum, or the capability of a thing to be perceived independently of the perception of its substratum?[41] In the first alternative, all composite wholes, *i.e.*, material bodies, will cease to be substances, since every one of them is dependent for its existence upon the parts that constitute it.[42] In the second alternative, sound and the touch of air, which are recognized as qualities by the Vaiśeṣika philosopher, will transpire to be substances, since they are perceived even when their substrata, *i.e.*, *ākāśa* and air in which they respectively inhere, remain unperceived.[43] Self-subsistence, therefore, in any sense, cannot be held to be the true criterion of a substance.

The Vaiśeṣika observes in reply that there are two kinds of substances, *viz.*, eternal and non-eternal. Atoms, *ākāśa*, time, space, mind and soul are eternal substances, whereas all composite material bodies are non-eternal substances. Eternal substances are, by their very nature, self-subsistent in an absolute sense. They exist in their own right, *i.e.*, inde-

[40] *Svaprādhānyapratītir eva dravyatvapratītiḥ.* NK., p. 13.

[41] Cit., p. 178.

[42] NP., p. 179.

[43] *Ibid.*, p. 178.

pendently of any other thing. Non-eternal substances, however, cannot claim such absolute self-subsistence, because they are constituted of parts in which they inhere.[44] But even a composite material body, though sustained in its existence by its constitutive parts, is felt as self-subsisting in relation to its own qualities and actions which inhere in it. Substancehood thus implies the character of self-subsistence (either absolute or relative) that we perceive in things marked by the possession of qualities and actions. The instances cited by Citsukha in connection with the second alternative interpretation of self-subsistence are beside the point, and the undesirable consequences alleged by him arise not so much from any defect in the definition as from the sceptic's eagerness to do away with the concept of substance altogether. As a matter of fact, the denial of a substance on the ground of its imperceptibility will, in some cases, inevitably lead to the substantializing of its perceptible qualities, and this is what we find in the cases of sound and the touch of air.

(c) *Substance as an Entity Possessing Motion*

Substance is defined by Kaṇāda as 'that which possesses actions and qualities, and is the inherent or material cause'.[45] Three distinct characteristics (*lakṣaṇa*) of substance have been suggested here, and each of them is supposed to stand for a complete definition of it. We propose in this section to confine ourselves to the examination of the first definition, *viz.*, that substance is what possesses action or motion (*kriyā*). Motion, of course, need not be actual in all cases ; even the mere possibility of motion in a thing entitles it to be classed as substance. But motion, whether actual or potential, is only an incident of limited magnitude (*mūrtatva*), and cannot belong to ubiquitous substances like *ākāśa*, time, etc., which are incapable of changing their position. The definition of substance by means of the property of motion is therefore too narrow, as it fails to include within its scope

[44] PPBh., pp. 16 and 21.
[45] VS., I. i. 15.

certain recognized substances which are immobile by their very nature. Śaṅkara Miśra attempts a defence of Kaṇāda's use of the term *lakṣaṇa* in respect of motion by suggesting that the term in this context indicates only a mark or sign (*cihna*) and does not bear the technical sense of a differential characteristic (*vyavacchedakadharma*). In other words, mobility, according to Śaṅkara Miśra, is a property the presence of which in a thing is an indication of the fact that the thing is a substance, and to this extent only mobility is the defining mark of substance. The definition is not intended to suggest that mobility is the distinctive characteristic of substance as such. Mobility is not certainly a characteristic which is present in all things denoted by the term substance and by means of which substance can be differentiated from all that is not substance.[46]

But whatever may be the practical value of Śaṅkara Miśra's suggestion, it hardly succeeds in overcoming the difficulty of defining substance by means of the property of motion. The so-called mark or *cihna,* on closer scrutiny, appears to be indistinguishable from a differentia, for the mark itself would be a misnomer if it did not mark off a thing from all that is different from it.[47] The possession of motion as a characteristic of substance requires, therefore, to be interpreted in such a manner that it may constitute the differentia of the particular type of reality which goes by the name of substance. The problem is chiefly one of formulating within the limits of the obviously defective language of Kaṇāda a logical definition wide enough to cover even the ubiquitous and immobile substances.

Jayanārāyaṇa proposes that Kaṇāda's definition should be taken to imply that substance is that entity which is marked by the possession of such exclusive generic character of a type of reality as invariably inheres in whatever is capable of motion. Motion belongs to things all of which exhibit the generic character of a particular type of reality, *viz.*, substance-

[46] VUp., I. i. 15.
[47] *Vivṛti* on VS., I. i. 15.

hood (*dravyatva*), since it is substance alone and not any other type of reality that is capable of possessing motion. Whatever partakes of this generic character is substance.[48] *Ākāśa* or any other ubiquitous substance is not excluded from the scope of this definition, for in spite of its immobility it shares the character of substancehood with things that are capable of motion.

A second interpretation proposed by Jayanārāyaṇa suggests that motion as a definitive mark pertains to substance not directly by means of the relation of inherence, but indirectly through a *tertium quid* in the shape of conjunction or disjunction, which is produced by motion. In other words, whatever is the substratum of conjunction or disjunction effected by motion is substance.[49] Even an immobile substance like *ākāśa* is capable of being conjoined with or disjoined from some other substance, say a jar, due to motion on the part of the latter ; and so the definition would apply to it.

We cannot say we have in these interpretations anything like a convincing defence of Kaṇāda's position. There is, on the contrary, a clear acknowledgment of the impossibility of defining substance by means of motion as such. All that can be said is that whatever is mobile is necessarily a substance, but no logical definition of substance can be derived from this. To define substance as something participating in substancehood or possessing the quality of conjunction or disjunction, as proposed by Jayanārāyaṇa, is certainly to define substance by means of some characteristic other than motion.

(*d*) *Substance as the Substratum of Quality*

Substance has been defined by some writers of the Vaiśeṣika school as 'that which is the substratum of qualities'.[50] This definition has obviously been formulated on the basis of Kaṇāda's reference to the possession of qualities (*guṇavattva*)

[48] *Kriyāvattvaṃ karmavadvṛttipadārthavibhājakopādhimattvam. Ibid.*

[49] *Kriyāvattvaṃ svajanyasaṃyogavattvasambandhena svajanyavibhāgavattvasambandhena vā bodhyam. Ibid.*

[50] *Guṇaśrayo dravyam.* NLV., p. 752.

as one of the distinctive characteristics of substance. The metaphysical objections raised by the Buddhist philosopher against this conception of substance have already been disposed of. The Vedāntic sceptics like Śrīharṣa and Citsukha have, however, severely criticized this definition and pointed out the logical difficulties involved in it. The definition, according to Citsukha, is too narrow, as it excludes a substance at the first moment after its production, when it remains destitute of qualities.[51] According to the Vaiśeṣika theory, substance is the inherent cause (*samavāyikāraṇa*) of its qualities, and as the cause is antecedent to the effect, the substance will be antecedent to its qualities and remain qualityless at the moment of its origination. The definition is also too wide, as it fails to exclude quality, and thus to distinguish substance from quality. If the possession of quality is the criterion of substance, then this criterion will apply to qualities also. Thus, in the proposition, 'Qualities are twenty-four', qualities are judged to be possessed of a definite number, which is held by the Vaiśeṣika to be a quality.[52] Nor can it be maintained that the notion of qualities being possessed of number is erroneous, as we do not meet with a contradiction in this conception. It is just on a par with the proposition, 'Substances are nine in number'.

To avoid this difficulty the definition of substance as the substratum of quality has been interpreted by Vallabha, the author of the *Nyāyalīlāvatī*, to imply that substance is that which is never the substratum of the absolute non-existence (*atyantābhāva*) of quality as such.[53] In other words, the actual existence of quality is not intended as the definition, but even the potential existence of quality will do. The definition viewed in this light does not fail to apply to substance at the

[51] *Utpannamātraṃ dravyaṃ kṣaṇam aguṇaṃ tiṣṭhatī 'ty aṅgīkārād avyāpteḥ.* Cit., p. 177.

[52] *Ibid.*

[53] *Guṇāśrayo dravyam. Tatra yady api sambandho na sanātanaḥ . . . . tathā'pī 'hā 'tyantāyogavyavacchedo lakṣaṇārthaḥ.* NLV., p. 753.

moment of its origination ; for, though it is then devoid of quality, the non-existence of quality in it is not absolute ; that is, there is the potentiality of existence of quality in it even at that moment. A quality, however, is invariably destitute of another quality,[54] and so the definition does not extend to it.

But this definition also has been adversely criticized. It has been pointed out that the definition will extend to absolute non-existence itself. As a thing cannot function as its own substratum, the non-existence in question cannot be the substratum of the same non-existence.[55] So, the definition of substance as that which is not the substratum of the absolute non-existence of quality, is found to be too wide. Nor can it be contended that absolute non-existence is, like knowability or namability, a fact, of which negation is not predicable in any context (*kevalānvayin*) and which therefore is necessarily present in everything including itself ; for such a contention implies its presence in substance as well, so that even substance comes to be the substratum of the absolute non-existence of quality.[56] It may be argued that the whole objection is based upon a rigid adherence to the assumption that absolute non-existence is a unitary principle, although, as a matter of fact, there is no conceivable logical bar to the possibility of a plurality of non-existences. So one non-existence can be the substratum of another non-existence, whereas a substance is never the substratum of the non-existence of quality.[57] But this defence too is not accepted as a satisfactory explanation. It is observed that though one non-existence can be conceded to be the substratum of another non-existence, the expression 'non-existence of quality' as an element in the definition of substance suffers

[54] PPBh., p. 16.

[55] *So 'pi hi guṇavattvātyantābhāvas tasyā 'nadhikaraṇaṃ, svasya svasminn avṛtteḥ.* Cit., p. 176.

[56] *Na ca prameyatvādivat kevalānvayitvaṃ yena . . . . svavṛttitā syāt, kevalānvayitve ca bhagnaṃ dravyalakṣaṇam.* NP., p. 176.

[57] The non-existence of quality, in this context, should always be understood as absolute non-existence (*atyantābhāva*), although, for the sake of brevity, it has been referred to simply as non-existence.

from ambiguity, which must be cleared to make it intelligible. Does the non-existence refer to any one of the qualities definitively, or all the qualities collectively? If the absence of one or the other specific quality is intended, then the definition will be too narrow. As the qualities are numerous, the presence of one particular quality in a substance is consistent with the absence of another, and the terms of the definition will exclude the substance in question from its purview.[58] Thus, if substance be defined as 'that which is never the substratum of the non-existence of one definite quality, say colour (*rūpa*), air (*vāyu*) which is marked by the possession of the quality of touch (*sparśaguṇa*) will be excluded from the class of substance on the ground that the quality of colour is never predicable of it. If, however, it is maintained that the expression 'non-existence of quality' means the non-existence of each and every one of the qualities, then the definition will be impossible, as we cannot conceive of an entity which is never the substratum of the non-existence of all the qualities, that is, in which all the qualities are always present. The affirmation of all the qualities in a substratum would be intelligible if each individual substance could be supposed to be always possessed of all the qualities.[59] The definition may of course change its implication if by the 'non-existence of quality' we should understand not the absence of *all* conceivable qualities, but the absence of *any one* of them. But this too will not improve upon the former position because the meaning of 'any one' is absolutely indefinite. Every member in a class of existents may be designated by the term 'any one', and so the inclusion of this term in a definition is extremely misleading. It makes the definition indefinite and thus defeats its very purpose. Moreover, it fails to steer clear of the difficulty, as pointed out above, that number (*saṃkhyā*) as a quality being predicable of qualities as a class, there will be an unwarranted extension of the definition to qualities also.

[58] Cit., p. 176.

[59] Ibid.

(e) *Substance as the Inherent Cause*

The negative implication of the definition discussed in the previous section gives no clue to the existence of the substance-universal (*dravyatvajāti*) which must be posited to make possible our conception and linguistic usage of substance as a category. Our experience also is more or less non-committal in this matter, for in the bewildering variety of specific substances we fail to discover any community of nature which may indicate the presence of the substance-universal in all of them. So a positive, independent proof of the substance-universal has to be pointed out, and this is sought to be given in a new definition, *viz.*, that substance is that which is the inherent or material cause (*samavāyikāraṇa*). This brings us to the third definition of substance proposed by Kaṇāda.

It is an established fact that a quality or an action can never be an inherent cause of anything, as by its very definition an inherent cause is that in which the effect directly inheres.[60] An effect, be it substance, quality or action, must have a substratum to inhere in, and this substratum is invariably a substance. Now, the question arises: What is the effect that can be universally referred to substance as its inherent cause? It cannot be a specific quality (*viśeṣaguṇa*) like colour or sound, because substances like time and space have no specific quality, and so the definition would not extend to them. For this reason, conjunction (*saṃyoga*) or disjunction (*vibhāga*) has been suggested to be the effect which can be affiliated to all substances irrespectively.[61] Even eternal and ubiquitous substances must come into the relation of conjunction with, or disjunction from, another substance.[62] Conjunction and dis-

[60] For a detailed discussion on the nature of the *samavāyikāraṇa* *vide* chapter XII.

[61] This point was first suggested by Vallabha and developed later on by Vardhamāna and Viśvanātha.

Vide NLV., pp. 94 and 97; NLVP., p. 96; SM., pp. 64-65.

[62] The Vaiśeṣika philosopher does not believe in the possibility of uncaused conjunction (*ajasaṃyoga*), and there is, therefore, no difficulty for him to refer every case of conjunction to an antecedent substance

junction being qualities must have a substratum in which they can inhere as their cause, and this inherent cause is substance. So the definition of substance as the inherent cause of conjunction or disjunction is complete, and does not exclude any substance out of its scope.

Now, the relation of causality is conceivable between two things only if each of them is found to be possessed of a definite character. A cause is always a definite entity, and so also the effect. The Nyāya-Vaiśeṣika philosopher does not believe in the existence of uncharacterized simples. If an entity without a definitive character is supposed to function as a cause, there will be no possibility of restricting the affirmation of causal relation to only legitimate cases of such relation.[63] When, for instance, we say that timber is the cause of the table, what is it that we should understand by affirming timber as the cause? Certainly timber is understood not merely as a substance, *i.e.*, as something different from all that is not substance, but as a *definite* substance with a distinctive character ('timberness'). If it were not so, the cause of the table might as well be affirmed to be any other substance just on the ground of its being a substance. This also applies to the effect. So causality is intelligible only with regard to a fact having a definitive character. This definitive character in a thing not only makes it what it is and distinguishes it from what it is not, but also determines the exact function that it should be capable of exercising; in other words, its specific function (including the causal function) is entirely dependent upon what constitutes its specific qualitative content (*dharma*). This being the case, the definition of substance as the inherent cause of conjunction or disjunction necessarily presupposes that this inherent causality must have a definitive characteristic of the causal entity as its determinant (*avacchedaka*), and that the

as its cause. Disjunction (*vibhāga*) is mentioned in this connection as a matter of concession to those who hold uncaused conjunction to be possible.

[63] *Avaśyaṃ hy avacchedakena bhavitavyam, anyathā 'kasmikalāpatteḥ.* VUp., I. ii. 5.

characteristic in question is nothing but what is called the substance-universal. This universal should, by a logical necessity, be supposed to be present in all things which are found to be the inherent causes of conjunction or disjunction.[64] The postulation of the substance-universal as a determinant of inherent causality is thus an inescapable logical necessity, for otherwise every individual instance of inherent causality would be an isolated, self-determined fact, and there would be no criterion to determine why this causal function should be exercised by some reals and not by others. It, therefore, follows that such reals alone are in a position to function as inherent causes as participate in the substance-universal and are determined and characterized by it.[65]

Now, according to the Nyāya-Vaiśeṣika philosopher, a universal is amenable to perception in a perceivable substratum, and the substance-universal, therefore, is directly cognized in those substances which are open to perception. It may be contended that the universal that is found in the earth-substance or the water-substance is only the earth-universal or the water-universal, and not any other universal. But this contention is short-sighted, inasmuch as the idea of inherent causality, being common to both the substances, must be accounted for by a concept which will include both the universals in its scope. The substance-universal must be posited to exist in the unperceivable substances as well, as the universal character of substances as a class. The presence of the substance-universal even in these unperceivable substances is a matter of logical necessity, as otherwise the inherent causality predicable of them will remain undetermined, which is an absurdity. To be more clear, in order to account for the inherent causality which is common to all specific substances, whether perceivable or not,

[64] *Kāryasamavāyikāraṇatāvacchedakatayā saṃyogasya vibhāgasya vā samavāyikāraṇatāvacchedakatayā dravyatvajātisiddheḥ.* SM., pp. 64-65.

[65] *Kāryāśrayatvam api sāmānyāniyataṃ navasv eva na syāt, kāraṇatvaṃ hi sāmānyena niyamyate.* KV., p. 33.

Also *vide* NLVP., p. 100; KVBh., p. 58.

a universal determinant of causality has to be found out, for, as we have already seen, an undetermined thing cannot be a cause. If, therefore, we are to find out the universal determinant of inherent causality, it must be one which will include all the specific determinants of individual instances of causality, *i.e.*, all specific universals, *viz.*, earthhood, waterhood and the like. This universal determinant gives us the idea of the substance-universal.[66]

An objection has been raised to this definition of substance by reference to causality. Causality, it is urged, is only an accidental character, as it can come into operation only with reference to an effect. An entity is characterized as a cause only when an effect is produced, and an effect being an occasional event, the causality in question will also be an occasional characteristic. It cannot be supposed that there might be eternally existing effects, because the very supposition is bound to lead to absurd consequences. An eternally existent fact cannot call for a cause of its own because a cause is necessary only to bring into existence something not existing before. So the definition of substance by reference to causality does not seem to be wholly satisfactory. Moreover, not to speak of eternal substances, even with regard to substances which are products and are therefore non-eternal, this definition appears to be inadequate, inasmuch as causality cannot be wholly co-existent with the thing believed to be a cause. The very conception of causality demands the antecedence of the cause to the effect. Accordingly, so long as the effect does not come into existence, the substance in question, which is the cause of the effect, will not have causality as its characteristic. Besides, the concept of substancehood as the determinant of causality is exposed to another grave objection. A characteristic can be regarded as determinant (*avacchedaka*) only when it is exactly co-extensive with what is determined.[67] If this condition is overruled, then the determinant of inherent causality as such

[66] NLVP., pp. 96-97.

[67] *Anyūnānatiriktavṛttidharmasyai 'vā 'vacchedakatvam.*

will not necessarily be the substance-universal, but other universals of greater or lesser extension ; in other words, it will be possible to accept as the universal determinant of inherent causality either the universal of existence (*sattā*) which is of wider extension, or any one of the specific universals like earthhood, waterhood and the like which are not co-extensive with the inherent causality found in all substances. To avoid this undesirable consequence it must be admitted that the determinant character must not be of greater or lesser extension than the determined character.[68] To apply this rule to the present case, the substance-universal as the determinant of inherent causality will have to be co-extensive with inherent causality itself. But, as observed before, causality is only an accidental characteristic, and so it falls short of the substance-universal in its incidence. The consequence is that the substance-universal cannot be the determinant of causality and so cannot be known with the help of this characteristic.

This difficulty, however, cannot make the knowledge of the substance-universal, as the universal character of all substances, impossible of realization. Causality is only the medium through which we come to the knowledge of the substance-universal, and even if the latter be a wider concept, there will be no difficulty in seizing hold of it as the constitutive ground of substance as a class. The concept of inherent causality, we know, is not intelligible without a determinant ; and as this determinant, again, cannot be anything else than the substance-universal, the definition of substance by inherent causality has got its utility. In fact, apart from the evidence of perception (which, however, is not applicable to all classes of substances), the possibility of substancehood as the universal character of all substances can be inferred only from causality. Although causality is not a necessary concomitant of substancehood, being a temporal determination, still it is the unfailing means of our knowledge of the latter as the universal that functions as a determinant of causality. And, once we light upon substancehood as the universal character of all substances, that

[68] VUp., I. ii. 5.

puts us in possession of the object of our quest. That substancehood does not necessarily co-exist with causality and is therefore independent of this functional characteristic, is not denied. But what the Vaiśeṣika philosopher seeks to emphasize is this, that the substance-universal which functions as the determinant of causality is identical with that which does not so function. As we have observed before, causality is only a means to the ascertainment of the substance-universal, and it does not make any difference to this universal by way of either detraction or supplementation. The objection that causality is only an accidental determination does not, therefore, stand in the way of our knowledge of the substance-universal, and if it helps our knowledge of it, it will have served its purpose; for the fundamental proposition that substancehood *quâ* determinant of inherent causality and substancehood minus this determination are absolutely the selfsame entity, cannot be assailed. The inherent causality which is found in all substances is thus an independent proof that establishes the existence of the substance-universal as its determinant. The definition of substance, therefore, by means of inherent causality is not only possible and useful, but is perhaps the only correct definition which the Vaiśeṣika philosopher can offer..

4. Types of Substances

We have so far sought to prove that the conception of substance is not only logically justifiable, but also inescapably necessary for an intelligent appreciation of reality. The Vaiśeṣika has discovered nine different types of substances, each exclusive of the rest, but all ultimately conformable to the notion of substance as such. They are the following:—earth (*pṛthivī*), water (*ap*), fire or light (*tejas*), air (*vāyu*), *ākāśa*,[69] time (*kāla*), space (*diś*), soul (*ātman*) and mind (*manas*).[70] It

[69] The common practice of using the term ether for *ākāśa* does not seem to have any justification. Ether is conceived as a medium for modes of energy; it is supposed to explain the various phenomena of heat and light. *Ākāśa*, as we shall see, has nothing to do with these phenomena.

[70] VS., I. i. 5.

is apparent from the very enumeration that the first five are what are regarded as the ultimate elements (*bhūtāni*) ; time and space are quasi-material substances ; and the last two, *viz.*, the mind and the soul, stand for non-material or spiritual reality, although it should be borne in mind, to avoid a natural misconception, that the Vaiśeṣika philosopher does not draw a line of demarcation between the material and the spiritual as if they were antithetical aspects of reality.

CHAPTER III

MATTER AND ITS CONSTITUTION

1. The Primal Material Substances

The physical order has been sought to be explained in the Nyāya-Vaiśeṣika system in terms of the five physical substances—earth, water, fire, air and *ākāśa*. Every physical substance or *bhūta* has some specific quality (*viśeṣaguṇa*) perceptible to an external sense.[1] The specific qualities of earth, water, fire, air and *ākāśa* are held to be odour, taste, colour, touch and sound respectively. The soul, no doubt, has a number of specific qualities, *viz.*, consciousness, pleasure, pain, etc.,[2] but still it cannot be classed as a *bhūta*, because these qualities can be apprehended only through the operation of the mind which is the internal sense-organ (*antaḥkaraṇa*). A physical substance or *bhūta*, therefore, can also be defined as a substance possessing some specific quality which is absent in the soul.[3]

Of the five physical substances, *ākāśa* differs in many important respects from others. *Ākāśa* is a non-corporeal (*amūrta*) substance and therefore possesses unlimited magnitude ; it is also devoid of tactility (*sparśa*). The other four physical substances, on the other hand, are limited in magnitude and characterized by tactility with all its implications. These substances, again, have the capacity of producing composite substances out of themselves, *i.e.*, of being their formative causes (*samavāyikāraṇa*). Earth, for instance, is such a cause of a substance like a jar.[4] But *ākāśa* is incapable of being the constitutive stuff of any substance. Again, the specific quality of *ākāśa*, *viz.*, sound, is non-pervading (*avyāpyavṛtti*) ; that is,

[1] PPBh., p. 22.

[2] *Ibid.*, p. 24.

[3] SM., p. 129. This definition of a *bhūta* is complete because the other three substances, *viz.*, time, space and mind, have no specific qualities.

[4] PPBh., p. 24; BhP., verse 27.

its incidence at any particular moment is confined within the limits of a part of *ākāśa*, and its existence in that part is not incompatible with its absence in any other part of the same.[5] The specific qualities of the other four physical substances are, in contrast, pervasive of them. In earth, for instance, there is no part where odour does not exist for all time. It is in view of these fundamental differences in character and function that *ākāśa*., though itself a *bhūta*, is distinguished, in the Nyāya-Vaiśeṣika system, from the four other *bhūtas*, and is held to be on a par with such intangible and ubiquitous substances as time and space.[6]

Earth, water, fire and air are obviously *material* in character. For, being tactile substances of limited magnitude (*sparśavanmūrtadravya*), they necessarily possess some of the important characteristics by means of which matter is ordinarily sought to be defined. Such characteristics are size, shape, impenetrability and mobility. The Nyāya-Vaiśeṣika philosopher treats these substances as ultimate material principles which are neither transmutable into one another nor reducible to a common ground. Each of them, according to him, is a fundamental and homogeneous kind of matter, characterized by its own specific quality or quality-group. This, however, is a position which is wholly unacceptable to a modern scientist. Fire, for him, is not a form of matter, but a manifestation of energy. Earth, water and air are, in his view, compounds (or mixtures), each of which is separable into parts qualitatively different from itself.

Some modern exponents of the Nyāya-Vaiśeṣika system have tried to bring this ancient enumeration of the primal matters into line with modern scientific thought. The enumeration, they suggest, should be understood not as a theory of 'elements', but as an attempt to classify the multitudinous forms of matter that make up the world, earth representing the solids, water the liquids, fire the luminous substances, and

[5] SM., p. 130.

[6] The logical necessity of postulating *ākāśa* as a separate physical substance will be discussed in Chapter VIII.

air the gases. But this appears to be a much too facile and superficial explanation. At any rate, it misses the fundamental principle on the basis of which the primal matters have been distinguished by the Nyāya-Vaiśeṣika physicist. The four material substances really represent four distinct types of concrete sense-stimuli. Earth, therefore, differs from water not simply as a solid differs from a liquid, but as fundamentally as odour differs from taste. We have already referred to the specific qualities of the material substances, and each of these qualities produces a definite kind of sensation. In our perceptual experience of the external world, it is these specific qualities that come first, and we know the substances as the objective fields or abiding grounds of these qualities. It is, therefore, quite logical to attempt a differentiation of these substances or matters on the basis of the reactions of our senses to them or to their specific sensible qualities. And this is exactly what the Nyāya-Vaiśeṣika philosopher has done. As a matter of fact, no other principle of differentiation could have been adopted by him with any degree of success, for he had to depend mostly upon the evidence of his senses for acquainting himself with the facts of the external world.

2. The Atomic Theory

The foregoing discussion makes it clear that the four material substances, though necessarily physical in character, do not exhaust the physical world, which contains at least one non-material subsance, *viz.*, *ākāśa*. *Ākāśa*, as we have seen, is a unitary, intangible principle pervading the whole sphere of reality. The material substances, on the contrary, are presented to us as tangible bodies of various shapes and sizes. *Ākāśa*, again, is conceived as characterized by absolute continuity. We cannot divide *ākāśa* in the sense of separating its parts as discrete units. But every material object admits of being disintegrated into smaller parts. We can break a stone into pieces, and then crush these pieces into powder. This obvious empirical fact naturally inspires an inquisitive mind to enquire into the ultimate constituents of material things. After

examining the various possibilities, the Nyāya-Vaiśeṣika philosopher has come to the conclusion that all sensible bodies are ultimately composed of extremely minute, invisible and infrasensible particles called atoms (*paramāṇu*).

It is common knowledge that a gross thing is produced by a combination of finer constituents or parts ; in other words, every material thing is divisible into parts, which are necessarily finer than itself. If we push the process of division further and further, we shall, of course, come by finer and finer parts. But the necessity of a logical analysis prevents us from accepting as final, any parts, however fine they may be, which admit of a still further division. We are here confronted with three possible alternatives.

Firstly, the process of division may be endless. This assumes that matter is essentially a continuous structure and is therefore always capable of further division. Every bit of matter, irrespective of its size, is thus infinitely divisible.

Secondly, the process of division may reach a point where no further division is possible because nothing is left to be divided. The ultimate nature of all things, on this view, is absolutely void.

Thirdly, the division may come to a definite halt on the discovery of a number of discrete reals which refuse to be divided into parts.[7]

The first alternative must be ruled out because it is found to fail to render an account of the infinite variety of sizes possessed by sensible things. Thus, for instance, if a mustard seed and a mountain were supposed to be constituted of an equally infinite number of parts, which the hypothesis of infinite divisibility of matter necessarily implies, it would be absolutely impossible to account for the difference in their size.[8] It may be contended that, if in spite of equality in the number of parts two bodies are found to vary in size, it is because the parts of the larger body are themselves larger than those of the smaller body or because the parts are packed

NV., IV. ii. 15, p. 514.

NVTT., IV. ii. 17, p. 456; NK., p. 31; KV., p. 51; NM., II, pp. 72-73.

together more loosely in the former than in the latter. But this contention is untenable. No part of a composite whole can be larger than any part of another whole, or any other part of the same whole, because the part itself in each case is supposed to be infinitely divisible. Difference in size between two things is possible only when at least one of them is of finite extension. But how can a thing be finitely extended when its constituents are supposed to be infinite in number? This also rules out the possibility of the combination of parts, because combination (*saṃyoga*) also presupposes that at least one of the two parts to be combined must move and therefore be of limited size.[9] The fact of the matter is that, if a whole is divisible into parts, and these parts into further parts, and so on *ad infinitum*, there will be no final unit of a determinate size, and in the absence of such a unit there will be no logical basis for explaining different sizes.

It is true that there is apparently nothing in the nature of a material thing to prevent the process of division from being repeated over and over again *ad infinitum*. But at the same time it is to be borne in mind that the postulation of an infinite series as an explanation of any problem must normally be scouted as a confession of failure, unless, of course, there is the sanction of some rigid logical necessity behind such a hypothesis. Besides, the hypothesis of infinite divisibility of matter implies that there are only wholes and no parts. The so-called parts, even the smallest conceivable ones, will be relative and, being susceptible of further division, will transpire to be wholes in their turn, and so on to infinity. It is clearly an inconceivable position. The absurdity can be driven home by a simple question: Are the parts possessed of gross magnitude, and, if so, is the magnitude equal or unequal to that of the whole? If the parts be devoid of gross magnitude, they will be atoms; and if the magnitudes of the parts and the whole be equal, then the relation of part and whole cannot be conceived to subsist between them. And if they are of unequal magnitude, then, again, the explanation of inequality will be

[9] KV., p. 51, and *Bhāskara* thereon.

possible only by having recourse to the theory of atoms ; for the inequality of the number of atoms will in that case be responsible for the inequality of magnitude.[10]

The second alternative, *viz.*, the essential voidity of things, is now to be examined. It is to be observed at the very outset that the conclusion does not follow from the premisses. Now, what are the data? There are things which are found to be aggregates or wholes, and these are divisible. The process of division cannot be pursued to infinity, as we have just found under pain of absurdity. If the division be a finite process, it must come to a halt, either on the discovery of positive indivisible reals which are always parts and never wholes, or on the discovery that there is nothing at the core. The latter hypothesis is untenable, because it involves a self-contradiction. Division is possible only if there is a thing to be divided. That thing really constitutes the base (*ādhāra*) on which division is to rest. However far the process of division may be carried on, it can at no time annul its base or end in vacuity, as division minus the divisible is as inconceivable and absurd as digging a hole in empty space.[11] So the conclusion of the nihilist that every thing is void and unsubstantial does, by no means, follow from the premiss of divisibility of matter at any rate. To sum up our findings on the three possible alternatives, the first and the second, which respectively maintain infinite divisibility and ultimate vacuity of matter, have been found to be untenable. The third alternative which holds that each material object is composed of a finite number of indivisible particles has thus to be accepted as the only possible explanation of its constitution.

An objection has been raised that, though the rival theories may not afford an adequate explanation, the doctrine of atomism also is not free from difficulties. Besides, we do not meet with any conclusive argument in support of this theory. Atoms are

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[10] NV., IV. ii. 17, p. 515.

[11] *Na pralayānto vibhāgaḥ, sa cā 'yaṃ vibhāgo vibhajyamānādhāro, vibhajyamānaś ca nā 'sti vibhāgo 'stī 'ti vyāghātaḥ. Ibid.*

ex hypothesi removed from the ken of perception, and inference which draws its sustenance and support from the data of perception has no better chance than perception to establish this theory beyond doubt. In reply the Nyāya-Vaiśeṣika philosopher observes that though perception is out of the question, inference will have its scope. If inference were strictly confined to the limits of the perceptual data, then all attempts at the solution of the riddle of existence must be abandoned in despair. But the counsel of despair has not appealed to the better minds of any age, and there has been no cessation of endeavour to arrive at the knowledge of the final and ultimate principles of things, which are, by their nature, imperceptible.

There is also no lack of independent argument to prove the existence of atoms as the ultimate constituents of matter. As we have already remarked, grosser things are made of finer materials. The magnitude or size of things is found to exhibit itself through variations in increase or decrease. The increase or decrease of magnitude, however, must reach its completion somewhere. The magnitude of largeness (*mahattva*), for instance, whch is found to occur on a progressively increasing scale, attains its highest point in such all-pervading substances as time, space, etc. Likewise, the magnitude of minuteness (*aṇutva*) which manifests itself on a progressively decreasing scale must find its culmination in some substratum. Thus the impossibility of conceiving an infinite scale of diminishing magnitude furnishes an indirect proof in favour of atomism.[12] The denial of atomic magnitude leads only to either of these absurd situations,—the diminishing scale may exhaust itself by reaching the zero point, or may be supposed to be interminable, the absurd consequences of which have been already pointed out by us. It has, however, been suggested that the utmost limit of diminishing magnitude may be found in a molecule (*truṭi*) which possesses a definite magnitude of its own, *viz.*, minimal

[1] NBh., IV. ii. 16; NK., p. 31; VUp., II. i. 12.

gross magnitude.[13] But the molecule is open to observation and, as such, must be subject to the same consequences as other visible bodies are. In other words, a molecule cannot be an ultimate real. It must be held to be composite and, therefore, liable to be broken up into finer elements.[14] So the ultimate integer of matter must be held to be something which is unbreakable and irreducible to anything finer. This is the atom which the Nyāya-Vaiśeṣika philosopher advocates.

But the atomic theory has been subjected to an array of formidable objections from very early times in India, and some of them have been recorded in the *Nyāyasūtra*.

The first and most obvious objection arises from the possibility of the co-existence of atoms and *ākāśa*. If there are atoms, then the ubiquity of *ākāśa* must be denied ; or, in the alternative, they must be supposed to be shot through and through by *ākāśa*, in which case the indivisibility of atoms goes to the wall.[15] To put the issue plainly, the question is: Does *ākāśa* exist in the inside of an atom, or not? The admission of the former alternative will make an atom porous and divisible, and that of the second will reduce *ākāśa* to a thing of limited magnitude. Uddyotakara maintains that the objection springs from a misconception of the nature of the relation of *ākāśa* to an atom. Certainly *ākāśa* is ubiquitous, but its ubiquity is not at all affected by its relation to an atom. Ubiquity is defined as conjunction with all substances of limited magnitude ;[16] and the conjunction of *ākāśa* with the atom is not denied. But the question of the existence of *ākāśa* inside the atom does not arise, because an atom has no inside or outside. Only a substance which is a product and so divisible is possessed of an inside and an outside, but an atom being an

[13] The mote visible as floating in a ray of sunlight, called *trasareṇu* or *truṭi*, is supposed to represent the molecule. *Vide Manusaṃhitā*, VIII. 132.

[14] NV., II. i. 31, p. 234; KV., pp. 51-52; VUp., IV. i. 2.

[15] NS., IV. ii. 18-19.

[16] *Yan mūrtimat tena sarveṇa sambandha iti sarvagatatvārthaḥ.* NV., IV. ii. 20, p. 517.

eternal and indivisible entity cannot have these spatial divisions.[17] These contingencies could be alleged to happen to an atom if it were a porous substance. A substance is said to be porous when there is a part of space unoccupied by its constituents inside its being.[18] But this is inconceivable with reference to an atom which is held to be partless. The objection that the absence of conjunction with the inside of an atom will deprive *ākāśa* of its ubiquity proceeds from a distortion of the meaning of the term ubiquity. Ubiquity does not mean conjunction with even what is non-existent. The inside of an atom does not exist, and so the absence of conjunction with it does not detract from the ubiquity of *ākāśa*.[19]

Another objection has been levelled against this theory. An atom is a material entity, *i.e.*, a tactile substance of limited magnitude.[20] Such a substance is always found to have a definite shape and size. An atom is believed to be globular in shape (*parimaṇḍala*),[21] and so must be supposed to be possessed of parts, because a definite shape in a thing is possible only as the result of a particular arrangement and disposition of its constituent parts.[22] Moreover, an atom is supposed to combine with other atoms. This combination means that one atom serves to erect a barrier between the other atoms which are combined with it from various directions. To be explicit, the central atom keeps the other atoms, proceeding from different directions for combination with it, absolutely detached from one another.[23] If the combining atoms were not kept separate, that is, if they were not made to occupy different points of space,

[17] *Akārye hi paramāṇāv antar bahir ity asyā 'bhāvaḥ.* NBh., IV. ii. 20.

[18] *Yasyā 'vayavāḥ parito nirantaram avasthitāḥ madhye ća na santi tat suṣiram.* NVTT., IV. ii. 20, p. 457.

[19] NV., IV. ii. 20, p. 517.

[20] For an account of the characteristics of atoms *vide* Chapter VII.

[21] Śrīdhara, however, takes the term *parimaṇḍala* in the sense of smallest magnitude (*sarvāpakṛṣṭaparimāṇa*), *i.e.*, the magnitude of an atom. NK., p. 133.

[22] NS. and NBh., IV. ii. 23.

[23] NBh., IV. ii. 24.

all the atoms would coalesce at one point, and the result would be a failure of accretion of magnitude. In other words, the combination of atoms, even if carried on to an infinite number, would result only in a size no bigger than that possessed by an atom.[24] So, the very possibility of combination of several atoms with one another presupposes that each of these atoms must have different parts and facets in and through which it can be conjoined with others. But this is a contingency which directly invalidates the conception of an atom, which, by its very definition, is supposed to be an impartite, simple entity.

Before proceeding to meet the charge in its specific issues we feel it necessary to remind the opponent of the atomic theory that the proof of atomism is furnished by the *reductio ad absurdum* of the rival hypotheses which seek to compete with it. The fact is that the atomistic conception of material reality takes its cue from perceptual experience and proceeds to the only logical conclusion which is indicated by it. Nobody can deny that gross things are produced from finer stuff, and one can realize the difficulty of the alternative theories advocating either infinite divisibility or essential vacuity of matter. So, if the atomic theory be the only possible alternative left to us, we must not be deterred by the consequential difficulties which have been urged by the opponent of this theory.

It has been argued that, because an atom has a limited size (*mūrti*) and a definite shape (*saṃsthāna*), it must have a spatial position and be possessed of a number of parts. But this is nothing but an argument by analogy, and it commits the fallacy of extending the characteristic behaviour observed in composite bodies to atoms, which are, by the very necessity of logical thought, conceived to be simple entities. There is no logical ground for supposing that the property of space-occupancy implying a limited size or a definite shape is the invariable concomitant of composite bodies alone, and so the conclusion of the compositeness of an atom on any of these grounds is simply a case of *non sequitur*.[25] The argument over-

[24] NV., IV. ii. 25, p. 521.

[25] *Ibid.*, IV. ii. 24, p. 519.

looks the absurdity involved in reducing an incomposite principle to a composite whole. So, it must be admitted, in view of the logical necessity which posits atoms to be the ultimate constituents of matter, that atoms, though occupying space and necessarily possessing qualities like shape and size, cannot be regarded as composite in constitution.

The difficulty involved in the combination of atoms must now be faced. It is argued that conjunction between two things is possible only in respect of parts, so that if an atom is supposed to be susceptible of conjunction, it must also be supposed to have parts of its own. The problem has been raised by Vasubandhu in the following words: "If an atom were conjoined in all the six directions (north, south, east, west, up and down) with six other atoms simultaneously, it would be possessed of six parts; and if all the atoms were combined at one point, the resulting substance would have no greater magnitude than that of a single atom."[26] It is further argued by Vasubandhu that, if an atom were to admit of spatial divisions, it would not be unitary in character. If, again, an atom were devoid of spatial divisions, it could neither cover space nor cast a shadow.[27] Covering of space means the exclusion of one atom by another from occupying the same position; which implies that an atom possesses the capacity of resisting another atom. But resistance and exclusion are understandable only in connection with a thing which possesses parts. And shadow means interception of light. In other words, when light comes into contact with the surface of a thing and is prevented from contact with the other part, *viz.*, its obverse, the light in the former and the shadow in the latter can be understood. But this would be absolutely impossible if things were to consist of atoms, as advocated by the Nyāya-Vaiśeṣika philosopher.

The problem raised in connection with the conjunction of atoms is, as we have observed, created by false analogy. The Nyāya-Vaiśeṣika philosopher does not admit the possibility of

[26] *Vijñaptimātratāsiddhi, Viṃśatikā*, verse 12.
[27] *Ibid.*, verse 14.

many atoms being conjoined at one and the same point of space. There is no instance of two tactile substances of limited size occupying the same space, which could make the objection worth while. The combining atoms, therefore, must occupy different points of space, and so the contingency of the resulting substance having atomic size does not arise.[28] Nor can it be contended that because an atom serves as a barrier between the other atoms combining with itself, it must be possessed of different parts. The fact of the matter is that for conjunction it is not necessary that substances should have parts, for even an impartite substance like *ākāśa* is found to be in conjunction. Each case of conjunction, therefore, is to be explained as determined by the special nature of the substances conjoined.[29] The principle which makes conjunction possible in the case of atoms is not the compositeness of the factors combined, but the possession of a definite magnitude (*mūrtatva*) and tactility (*sparśavattva*). It is a matter of common observation that substances having a definite size and tactility resist and exclude one another when they come together. An atom having these characteristics thus excludes another atom and prevents mutual absorption. This also explains why when two atoms are conjoined, the conjunction is judged as only partial in character, and not as pervading the whole of its substratum, *i.e.*, either of the conjoining atoms. The partial character (*avyāpyavṛttitva*) of the conjunction cannot, therefore, be made

[28] NV., IV. ii. 24, p. 522.

Vācaspati Miśra points out that even coincident (*samānadeśa*) conjunctions do not stand in the way of accretion of magnitude, though coincident inherences do. Any number of qualities and actions which are all incorporeal in nature are found to inhere in a common substratum without increasing the magnitude of the latter. But there is no logical ground for extending this rule to the case of coincident conjunctions, if such conjunctions were at all possible. The fact, however, is that things of limited size (*mūrtadravya*) can neither inhere in a common substratum, nor be conjoined with the latter at one and the same point of space simultaneously. *Vide* NVTT., IV. ii. 24, p. 459.

[29] *Na hy aṃśaviṣayaḥ saṃyogo dravyāṇām . . . , kintu svarūpaviṣayaḥ.* NK., p. 43.

the ground for supposing an atom to be actually possessed of parts.[30] When, therefore, one atom is simultaneously conjoined with others, the conjunctions are distinguished from one another and thus believed to be partial, not because of their location in the different parts of the central atom, for the atom is *ex hypothesi* impartite, but because they are found to be spatially limited through association with different directions or points of space (*digbheda*).[31] As a matter of fact, the possession of parts has no bearing upon the question of conjunction. The principle which makes conjunction possible has been found to be a different matter. The association of conjunction with the possession of parts is evidently due to the fact that the observed data of conjunction are always found to be composed of parts, and the belief that this is the essential condition of conjunction is fostered by the obvious confusion caused by the repeated observation of this association.

As regards the objection of Vasubandhu that spatial divisions which must be affirmed to pertain to an atom will necessarily split it up into a number of constituents corresponding to those divisions, Uddyotakara observes that the premisses are not admitted by the Naiyāyika, and so the conclusion does not follow. The Naiyāyika does not admit spatial divisions in respect of an atom simply because the spatial divisions as such, irrespective of their bearing upon atoms, are nothing but ideal constructions. Space in and by itself is an indivisible (*akhaṇḍa*) and unitary (*eka*) substance, and the contact of things with it is interpreted as divisions in it. As regards an atom, it is by its very logical necessity devoid of all intrinsic spatial determinations. The spatial determinations that are supposed to belong to space or to an atom thus transpire to be intellectual fictions, and so the divisions entailed by them, fictitious that they are, cannot invalidate the unitary character of the atom. The only thing that is admitted is that the atom bears a definite

[30] NBh., IV. ii. 24.

[31] *Yugapad anekamūrtasaṃyogitvañ cā 'nekadigavacchedenā viruddham.* ATVD., pp. 623-624.

relation to space, and this does not involve any adverse consequences.[32]

The second objection that an atom can neither cover space nor cast a shadow, proceeds from a misunderstanding of the implications of these two functional peculiarities. Covering of space is possible for an atom because it is a tactile substance possessed of a definite size, and this has absolutely no bearing upon the possession of parts. After all, covering of space means that a substance precludes another substance from occupying the position which it occupies.[33] And the phenomenon of shadow is also an incident of the phenomenon of covering. When an atom of light (*tejas*) is precluded by an atom of another substance from occupying a particular position, the former is said to be intercepted by the latter, and this is shadow.[34] So these two phenomena upon which Vasubandhu based his conclusion of the compositeness of an atom are found on examination to be due to causes which are not incompatible with the simple constitution of an atom.

It appears that all these objections raised against atomism have proceeded from a confusion of fundamental issues on the part of the critics and opponents of this theory. These critics have all along assumed tacitly or explicitly that the possession of a definite magnitude is equivalent to, or a necessary concomitant of, the possession of parts. But this is nothing but a case of confusion of two concepts which must be kept clearly distinct and separate in our minds for a critical comprehension of the constitution of material bodies. The Nyāya-Vaiśeṣika philosopher has emphasized that the conception of atoms as the ultimate constituents of matter is necessitated by an imperious logical demand, which is further strengthened by the failure of the rival theories that we have

[32] *Digdeśabhedān kalpayitvā paramāṇor digdeśabhedo 'bhyupagamyate. Mukhyas tu na digdeśabhedo, nā 'pi paramāṇor bhedaḥ. Paramāṇur diśā sambadhyata ity etāvanmātraṃ vidyate.* NV., IV. ii. 25, p. 522.

[33] *Ibid.*

[34] *Ibid.*

discussed before. If the postulation of atoms as the ultimate units of matter is imposed by a logical necessity which we cannot override, then the consequential objections must be ruled out of court. The very fact that an atom is necessarily a material entity indeed involves the necessity of its occupying a definite position in space and possessing a definite magnitude. It also follows that an atom must be an active substance and capable of being combined with other atoms with a view to the production of gross material bodies. And the fact of its possessing a definite magnitude and position in space necessarily involves the consequential property that it must take up room to the exclusion of other atoms and resist being penetrated or absorbed by them. By making these consequential properties and functions the ground of the refutation of the reality of an atom, the critics of this theory expose themselves to the charge of missing the wood in the trees. The difficulties made out by the opponents are no difficulties at all, because they follow directly from the fundamental conception of atomism. Furthermore, the fact that conjunction and resistance are observed in composite bodies, is made the basis of a general conclusion that for conjunction and resistance things must be composite. But this is, as has been shown already, a case of an unwarranted generalization of an empirical fact, which has not only no logical justification behind it, but is also directly contradicted by the logical necessity which makes the postulation of atomism irresistible.

3. The Molecular Theory of Raghunātha Śiromaṇi

Raghunātha Śiromaṇi, the founder of the Neo-logical school in Bengal, has written a work called *Padārthatattvanirūpaṇa* which is a standing proof of the boldness and originality of the author. In this book he has propounded his own views of the categories and practically demolished the Vaiśeṣika categories *in toto*. He also denies the reality of atoms, but not on idealistic grounds. According to him, the ultimate unit of matter is not an atom but a minimal gross body which has

been called *truṭi,* the molecule of the old philosophers.[35] He would not descend below the stage of the molecule. This molecule, of course, is an ultimate unit and not a factitious product due to the combination of atoms. The accepted theory of the Vaiśeṣika, which we shall discuss in the next chapter, is that two atoms combine to make a dyad (*dvyaṇuka*), and three such dyads make a molecule or triad called *truṭi* or *trasareṇu.* Raghunātha holds that there is absolutely no logical ground for believing molecules to be products and, as such, perishable. The logical necessity for postulating atoms will be satisfied by the postulation of molecules, which will furnish the limit of progressive diminution of magnitude. The argument that a molecule (*truṭi*) must be possessed of parts and divisible into finer constituents, *viz.*, dyads (*dvyaṇuka*), because they are visible substances, has no logical validity. This argument is supposed to prove the dyads as the constituents of a molecule, and another argument is needed to prove atoms. This argument, that dyads are further reducible to atoms because they are the constituents of a substance (*truṭi*) which is visible, is devoid of any logical necessity . This line of argument can be endlessly multiplied, and it can be argued with equal logical propriety that the constituents of a dyad are further reducible to finer particles which are their material cause, because they are the constituents of a substance which is the material cause of a visible substance. And in the same way arguments can be employed for establishing finer and still finer entities in the infra-atomic order without reaching any finality.[36]

The contention that molecules will be liable to decay as they are visible substances equally lacks cogency, because visibility is not a necessary concomitant of perishability. More-

[35] For the sake of historical accuracy it should be noted that Raghunātha is not the original propounder of this theory. He seems to have borrowed it from the Bhāṭṭa Mīmāṃsakas. Some are inclined to ascribe it to the Vaibhāṣikas of the Vātsīputrīya sect. In any case, it is a very old theory, because it has been criticized by Uddyotakara following Vātsyāyana. *Vide* NV., II. i. 31, pp. 233-234.

[36] PTN., pp. 11-15.

ever, visibility is only a relative concept. What is the standard of visibility? If it is inclusive of the supernormal perception of the *Yogins* or of the heightened power of vision conferred by scientific instruments that have been or may be invented, then the atoms of the Nyāya-Vaiśeṣika philosopher will also be liable to this contingency. Therefore, if a molecule be regarded as the final limit of diminutive magnitude and the ultimate unit of matter and, for the matter of that, an imperishable entity, then there will be no difficulty in accounting for accretion of magnitude by the combination of molecules, because they are possessed of extension and are thus capable of partial conjunction.

The first and most important objection to the molecular theory is that it assumes the existence of particles that are extended but indivisible. The position has been criticized in some detail in the course of our discussion of the orthodox Nyāya-Vaiśeṣika standpoint. It is, however, obvious enough that a visible extended body should be capable of being divided, in imagination at least, into finer parts. And whatever is imaginable or conceivable and is not contradicted by subsequent experience cannot be unreal.

Raghunātha's contention is that for the explanation of the things that we can and do observe we need not go beyond the realm to which they actually belong, *i.e.*, the realm of sense-data. The divisibility of matter should thus either have its limit in the visible order or have no limit at all. The Nyāya-Vaiśeṣika philosopher does not accept this position. By the very necessity of logical thought, he argues, the ultimate constituents of sensible matter should be supposed to be inaccessible to senses, for in that way alone lies the escape from the infinite regress to which Raghunātha refers. In fact, the atoms assumed in the Nyāya-Vaiśeṣika system, though affirmed to be real, are in their very nature imperceptible by our senses even when aided by the most powerful instruments of observation. There is however no incongruity if it is believed that atoms are amenable to yogic perception, which is supposed to

be a sort of mystic experience to which none of the ordinary empirical standards is applicable.

It may be said that Raghunātha's view has at least the merit of being more intelligible than the atomic theory from the plain man's point of view. It does not put any severe strain on our imagination to form an idea of the ultimate constituents of material bodies. On the contrary, we find it extremely difficult to form in our mind a definite picture of the being and functioning of atoms. But this is by no means a convincing defence of Raghunātha's position. Intelligibility is often achieved through the sacrifice of subtle logic and the oversimplification of difficult issues. Indeed, the ultimate reals that are arrived at by scientific and philosophical speculations are not all picturable. But that can neither act as a deterrent against philosophical enterprise nor indicate the failure of such enterprise to discover explanatory principles.

4. Concluding Remarks

It is a fashion now-a-days to describe any ancient form of atomism as crude and dogmatic and as having an interest that is purely historical. The verdict assumes the possibility of a comparison and ignores the basic disparity between, say, the Vaiśeṣika theory and the speculations of modern physicists. The Vaiśeṣika conception of the atomic structure of bodies was the direct result of what may be called inductive reflection, *i.e.*, a close logical thinking about the facts presented to the senses, without any experiment or such methodical analysis as is advocated and approved by a modern scientist. The Vaiśeṣika theory is, therefore, nothing but a philosophical theory, and its merits must be judged on philosophical or rather purely logical grounds. If, therefore, with the discovery of new facts about matter, the Vaiśeṣika theory appears, to-day, to be obsolete from the strictly scientific point of view, that by no means is of much significance to a student of philosophical thought.

Again, what is the value of 'the new facts about matter' which are supposed to necessitate the rejection of classical

atomism? Remarkable as the recent investigations of modern physics have been, the conclusions arrived at are still in a tentative stage. During the nineteenth century the old atomic hypothesis of the Greeks was given a scientific form and status by Dalton and others, and it formed an admirable basis as much for the convictions of the ordinary man as for the researches of physical and chemical science. To-day, however, the atomistic conception of matter has been largely superseded. Modern matter has thus become infinitely mysterious, and the latest speculations of the scientists do not throw a definite light on the problem whether the real nature of matter is material or non-material.[37] When, therefore, modern science is not itself convinced of the finality of its own conclusions, where is the justification of our rejecting a philosophy which at least gives us a clearly imaginable picture and a fairly intelligible theory of the structure of the material world?

[37] "Little is left of the forbidding Materialism of the Victorian scientists; modern physics is moving in the direction of philosophical Idealism." Sir James Jeans: *Presidential Address to the British Association in September, 1934.*

CHAPTER IV

THE FORMATION OF GROSS BODIES

1. The Intermediary Stages: Dyads and Triads

In the preceding chapter we have sought to understand the logical necessity of postulating atoms as the ultimate constituents of matter in the light of the arguments of the philosophers of the Nyāya-Vaiśeṣika school. But the establishment of atoms is only a preparation for the explanation of the formation of gross bodies that are open to observation. The question naturally arises: What is the *modus operandi* by which atoms contribute to the formation of gross bodies? The position of the Vaiśeṣika philosopher is that two atoms combine to form a dyad (*dvyaṇuka*), and three such dyads are the constituents of a triad (*tryaṇuka*) which is the smallest form of a gross body visible to the naked eye.[1] The atoms are not capable of directly producing a triad. Between these two extremes[2] there is an intermediate entity called the dyad which takes a direct part in the formation of a triad.[3]

But it may be asked: What is the necessity of assuming the existence of a dyad? To put the question more clearly, what part does the dyad play in the process of the genesis of the material world? It is not enough to say that the dyad serves as a connecting link between an atom and a triad, or that it fills the gap that separates the infra-sensible and what may be called the *minimum sensibile*. The problem is how it does so. A full discussion of this problem will necessarily

[1] This is why an atom is represented as the sixth part of a triad which is conventionally, though not quite correctly, identified with a mote visible in the sunbeam.

[2] It has already been made clear in the last chapter that the atom is the limit of minuteness (*aṇutva*), and the triad is the limit of diminishing grossness (*mahattvāpakarṣa*).

[3] NM., pt. II, p. 73; NK., p. 32.

involve a consideration of the nature and function of the triad as well.

Atoms cannot be supposed to directly produce a gross body, because in that case it would be absolutely unrecognizable. A gross material body can only be distinguished by its structural peculiarity which results from the special arrangement of its parts ; but these parts which are *ex hypothesi* atoms cannot be perceived either individually or *en masse.* In fact, any possible arrangement or combination that the atoms may undergo will necessarily be imperceptible.[4] Thus there can be no recognition of difference in shape, and a jar would be indistinguishable from a chair or a table or any other thing. For exactly the same reasons it would be impossible to notice any structural similarity between one jar and another, and to affiliate either of them, or, for the matter of that, any individual jar, to the jar-class (*ghaṭajāti*) ; for the presence of a specific class-character, say jarness (*ghaṭatva*), in a material body can be revealed only through some structural peculiarity (*saṃsthāna*) which the body may be found to possess in common with other bodies of the same type.[5] No such contingency, however, arises, as we shall presently see, in the accepted theory of the composition of gross bodies. Moreover, if a gross body were to result directly from the combination of invisible atoms, the destruction of the body would imply its immediate disappearance because of the invisibility of its parts, *i.e.*, atoms, as destruction means the dissolution of a thing into its constituent elements. But this is manifestly contrary to what is actually found to be the fact. When, for instance, a jar is broken, it does not disappear forthwith ; it is resolved into potsherds, and the latter, again, into finer pieces, and so on. Nowhere in nature does the disintegration of a visible body make its constituent elements vanish out of sight. The posi-

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[4] *Paramāṇūnām āhatya ghaṭādyārambhakatve 'vayavānām atīndriyatvena tatsaṃyogarūpasya kambugrīvāder apratyakṣatvāpātāt.* *Setu,* p. 219.

[5] *Tathā ca saṃsthānabhedānupalambhe tadabhivyañgyaṃ ghaṭatvādikam api no 'palabhyeta.* KV., p. 64.

tion can be explained logically and intelligibly if it is supposed that the disintegration of a gross body is gradual and takes place through a series of smaller and smaller bodies until we reach at the bottom the minimal gross body, *viz.*, the triad.[6] It is necessary, therefore, to suppose that there must be at the outset the triad representing the minimal gross magnitude, as the primary gross unit in the process of the formation of bodies of progressively increasing magnitudes. The atoms are necessary only for the formation of a triad.

Now, the question is: Do the atoms directly combine to produce a triad? Or, is the postulation of an intermediate factor, *viz.*, the dyad, necessary? To be explicit, is the conception of the dyad sanctioned by a logical necessity which we cannot ignore or override? The accepted theory is that two atoms unite to form a dyad, and three such dyads produce a triad. The magnitude of the dyad cannot be greater than that of the atom, because the atomic magnitude is held to be devoid of causal efficiency (*anārambhaka*).[7] The reason underlying the conclusion is this: If the magnitude of the atoms were in a position to produce the magnitude of the body formed by them, then the magnitude of the body would be of a higher degree in the order of minuteness (*aṇutva*). For a magnitude is capable of giving rise only to a superior magnitude of the *same order*.[8] Thus the gross magnitude of two bodies is invariably found to be the cause of a grosser magnitude in the body which they produce by their combination. The fact is that minuteness (*aṇutva*) neither produces grossness (*mahattva*), nor is produced by it ; the two magnitudes belong to different orders and have no relation between them.[9] On this view, then, it is expected that the magnitude of a dyad should be minuter than (*i.e.*, superior in the scale of minuteness to) that of either of the constituent atoms. But the magnitude of an

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[6] NM., II, p. 73; NK., p. 32; KV., p. 64; NLV., p. 822.

[7] NK., p. 137; KV., p. 216; NKu., pt. II, p. 112; VV., p. 479.

[8] *Parimāṇasya svotkṛṣṭaparimāṇajanakatvāt . . . . utkarṣaś ca . . . . tarabantakāraṇaparimāṇavācakavācyatvam.* NKuP., pt. II, p. 118.

[9] NLV., p. 843.

atom is held to be the limit of minuteness. The possibility of a minuter magnitude resulting in the effect should, therefore, be ruled out. So atomic magnitude is denied the capacity to produce any kind of magnitude, and for this reason the magnitude of a dyad is not believed to be superior in point of minuteness to the magnitude of the atoms which compose the dyad.[10]. In fact, minuteness is a unique kind of magnitude that does not admit of difference in degree. The atomic magnitude of a dyad has, therefore, to be explained on a numerical basis, *i.e.*, as due to the duality (*dvitva*) of the combining atoms.[11]

But does the postulation of a dyad mitigate the difficulty which the theory of direct combination of atoms leads to? The dyad does not possess a magnitude different from that of the atom ; and if the rule formulated above holds good in all cases, dyads, whatever their number, cannot be supposed' to produce by their combination a body with gross magnitude. So the magnitude of the dyad must be denied causal efficiency equally with that of the atom.[12] It thus follows that the minute or atomic magnitude of the dyads constituting a triad is incapable of producing any magnitude, gross or atomic, in the triad. Wherefrom, then, does the triad, which is *ex hypothesi* the smallest gross body, derive its magnitude?

The Vaiśeṣika proposes a rather peculiar solution of the problem. He does not think that the magnitude of a composite is necessarily determined by that of the components. The cause of gross magnitude (*mahattva*) in a produced substance is, according to him, either the gross magnitude of its formative causes (*kāraṇamahattva*), or the looseness of their conjunction (*kāraṇapracaya*), or the plurality of their number (*kāraṇa bahutva*).[13] The verification of the first alternative is found in the difference of size between two pieces of cloth when they

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[10] NK., p. 137; NKuP., pt. II, pp. 117-118.

[11] PPBh., p. 131.

[12] NK., p. 135.

[13] PPBh., p. 131.

are produced from the same number of yarns woven together with the same degree of closeness. That one piece of cloth is of greater length than the other, is due to the greater length of the yarns. The second alternative is verified by the increase in size of one piece of cloth over another when both of them are made up of yarns that are equal in number and length. This can be due only to the yarns being conjoined more loosely in the larger piece of cloth. The truth of the third alternative is verified by the fact that one piece of cloth is found to be larger than another even when both of them are produced from yarns which are of the same length and which are woven with the same degree of closeness. The larger size of one of the two pieces of cloth is to be accounted for by the greater number of its yarns.[14]

Inasmuch as atoms and dyads are both devoid of gross magnitude and incapable of loose conjunction,[15] it is not possible to explain the production of grossness in a triad on the basis of the first two alternatives. The Vaiśeṣika naturally thinks that the third alternative provides the necessary explanation. In other words, he sets down the gross magnitude of a triad to the causal influence of the *plurality* of its constituents. That a plurality of formative causes produces in their effect a magnitude greater than that of each of them, is found in ordinary experience, although it must be admitted that the causal efficiency of mere plurality, completely dissociated from gross magnitude, is not open to observation ; for observation is possible only in the case of gross visible bodies. Such being the case, the production of a triad which is necessarily possessed of gross magnitude must be attributed to the combination of at least *three* dyads. For the sake of simplicity and logical economy it is maintained that the number of dyads that constitute a triad

[14] VKT., II. ii. 11, p. 504.

[15] To be loosely conjoined things must possess extension or gross magnitude (*mahattva*). Atoms or dyads being unextended particles of matter are devoid of the capacity for loose conjunction (*pracaya*). In other words, there can be no inter-atomic or inter-dyadic space inside a combination of atoms or dyads.

is *three*;[16] and the gross magnitude of the resulting triad is held to be due to the plurality of its formative causes and not to their magnitude.[17]

It has transpired, in the course of our enquiry, that the magnitude of a dyad does not fare any better than that of an atom so far as its bearing upon the formation of gross bodies is concerned. If, therefore, it is the number that is supposed to contribute to the production of gross magnitude, then the question may be legitimately posed: Why is this causal efficiency denied to atoms by themselves? It should certainly be possible for even a *plurality* of atoms to combine and produce a triad, without offending the law of causation as exemplified in the production of magnitude.[18] The advantage of this hypothesis, again, is obvious. We can dispense with the dyad, a *tertium quid,* which serves only as an intermediary and has no independent contribution of itself. We should, therefore, hold that a triad and its gross magnitude are produced by the direct combination of three atoms and not through the combination of three dyads. A question naturally arises in this connection: Why should the Vaiśeṣika have uniformly resorted to a tortuous theory when a simpler explanation is available in the hypothesis just propounded? Is there any logical necessity for positing the dyad? This is an intriguing problem, and the exponents of the Vaiśeṣika system have offered a number of arguments in support of the dyad.

It is argued that a substance of gross magnitude can be produced only from a *plurality* of substances which are themselves *products.* If a single eternal substance like an atom were supposed to be independently productive, the condition for production would be perpetually present, and production would never cease. Moreover, such a supposition would make

[16] When the number *three* which represents the minimum standard of plurality (*bahutva*) is adequate to serve the purpose, there is no logical necessity of requisitioning a higher plural number.

[17] PPBh., p. 131; NK., p. 135; KV., p. 213.

[18] This view seems to have been actually advocated by some Vaiṣeśikas. *Vide* Din., pp. 153-154; VKTP., II. ii. 11, p. 504.

the product indestructible. A produced substance (*kārya-dravya*) is necessarily a composite (*avayavin*) ; it can be destroyed either by the destruction or by the separation of its constitutive elements. But neither of these two conditions of destruction would be possible for a produced substance if a single eternal atom were held to be its constitutive cause. Nor can it be said that a triad (three-atom-combination) is productive of gross material things, for the triad itself being a substance of gross magnitude must have for its constituents produced substances of smaller magnitude. It, therefore, follows that the dyads, which are the first produced substances (*i.e.*, primary composites) and which have been shown to be devoid of gross magnitude, should be held to be directly productive of gross bodies.[19]

The question that should also engage our attention in this connection is whether a dyad is an impossibility under any circumstances. The existence of atoms has been proved. Now, if atoms exist and move, is it impossible that two atoms should get together and combine? If the possibility of the combination of two atoms cannot be logically denied, then it must be admitted that this combination will necessarily result in a product ; and as this product cannot be supposed to have a greater magnitude than that of the atoms on account of the law formulated above, it must be assigned a place between an atom on the one hand and a triad on the other.[20] This is the reason why a dyad has been assumed. The possibility of a dyad is thus deduced from the possibility of a free combination of atoms. The same result can be attained by another process. If we go on dividing a gross material substance into finer and finer constituents, we must ultimately reach a point where the constituent would be the first produced substance, resulting directly from the combination of atoms. Now, what may be the number of the atoms which constitute the first product? The number may be one or two or three. It cannot be one, because no substance can be produced by a single unit, as it will lack one

[19] NK., p. 32; KV., pp. 64-65; NLV., p. 822.
[20] VKTP., II. ii. 11, p. 504.

of the necessary conditions of production, *viz.*, the conjunction of formative causes. Neither can it be supposed to be necessarily three, because there is a lower figure, *viz.*, two. So the minimum number of constituents of a produced substance must be two, and this gives us the dyad.[21]

The existence of the dyad is thus established, and the possibility of the combination of dyads must be acknowledged as a consequence. For reasons already explained, it must be held that three dyads unite to produce the minimal gross body, *i.e.*, a triad. As against this orthodox Vaiśeṣika position, it has been suggested that there is no conceivable logical bar to the possibility of three atoms directly combining and producing a triad. But if this possibility is admitted, there will be two different kinds of triads—one composed of three dyads, and the other of three atoms. The obvious implication is that atoms are possessed of a dual capacity, *viz.*, that of producing a dyad which is capable of producing a triad, and also that of producing a triad directly, *i.e.*, without producing an intermediate dyad. A cause thus transpires to be productive not only of its immediate effect but also of what is produced by that effect. This, however, is a position which receives no support from the testimony of experience. A piece of cloth, for instance, is produced from yarns, and yarns, in their turn, are produced from fibres of cotton. It is never found that fibres of cotton directly produce a piece of cloth.[22] So we are in a position to understand why the dyads are held to be a necessary stage in the process of the formation of a gross body and why the theory of the free combination of a plurality of atoms directly giving rise to a gross body is not accepted by the Vaiśeṣika.

We have so far discussed the logical necessity of the dyad as an intermediate stage in the process of the formation of a body out of the ultimate atoms. But how is a dyad related to the component atoms? What is its specific property, and

[1] KV., p. 65; NLV., p. 823; VKT., II. ii. 11, p. 504.
[2] KV., pp. 65-66; NLV., p. 823.

how does it come to acquire it? The Nyāya-Vaiśeṣika system answers these questions in the light of its own peculiar theory of causation, according to which every dyad is necessarily made up of two atoms of the *same class*. If a dyad were to result from the union of two atoms of different classes, it would partake of the class-characters of both, which, however, necessarily implies that it partakes of the class-character of neither, for nothing can conceivably belong to two mutually exclusive classes. Again, the dyad in question would not possess any specific quality, for no specific quality could be produced in it by the specific quality of either of the constitutive atoms. The specific quality of one atom is essentially (not merely numerically) different from that of another, and no single unit of specific quality can independently produce an effect. If it could, its existence being the sole condition of its productive function, it would not cease to produce its effect so long as it existed. This, however, is an absurd position. An earthy dyad, therefore, is composed of two earthy atoms, and the specific quality of the earthy dyad, *i.e.*, its odour, is the result of the union of the odour of one earth-atom with that of another. The dyads of other material substances are similarly formed, and their respective specific qualities determined according to the same principle. A dyad, therefore, cannot possess a quality which is present in one of the component atoms and absent in another. If an earth-atom unites with an water-atom to form a dyad, the dyad will be odourless, since odour is present in only one of the constitutive atoms, *viz.*, the earth-atom.[23] It may be contended that such a dyad, though devoid of odour, will at least exhibit some kind of taste and colour, for both of its constitutive atoms possess taste and colour as their specific qualities. The orthodox Nyāya-Vaiśeṣika view does not accept this position, for, according to it, the specific tastes or the specific colours of earth and water are not of the same kind and cannot, therefore, unite to produce a similar taste or colour in the dyad. For, being of different nature, the two tastes or colours (of the two atoms) will neutralize each other as soon as they

[23] KV., pp. 59-60; VUp., IV. ii. 2.

come together and thus fail to produce any taste or colour in the effect (*viz.*, the dyad). The question has also been raised whether it is possible to have a compound composed of two atoms of earth and one atom of water. Since odour is present in two of its constituents, *viz.*, the two earth-atoms, such a compound, though of heterogeneous atoms, will possess odour. But this also is impossible from the orthodox point of view, for the compound in question will be a triad and not a dyad ; but atoms are supposed to be incapable of combining directly to form a triad. It thus follows that two heterogeneous atoms can under no circumstances combine as constitutive factors to produce a dyad.[24]

The possibility of the conjunction of heterogeneous atoms is not, however, altogether ruled out. But such conjunction is of a peculiar nature and cannot function as the non-material cause (*asamavāyikāraṇa*) of any composite substance. Though the constituents of a compound are necessarily the atoms of the same substance, it is believed that these atoms cannot unite to form a whole unless they are in intimate contact with the atoms of the other substances, which are supposed to activate them and give them a sort of support ; and though the heterogeneous atoms have no direct bearing upon the actual production of a compound, they, by their peculiar association (*upaṣṭambha*) with its constituents, invest it with certain qualities, the presence of which in it is not warranted by its constitution.[25] A dyad of earth, therefore, should be supposed to be composed not of two atoms of earth only, but of two atoms of earth as the material cause (*samavāyikāraṇa*) and a number of atoms of one or more of the other substances operating as accessories (*nimitta*) ; and this is why even an earthy dyad may possess qualities which do not belong to earth as such. The influence of the contact of these accessories (*i.e.*, atoms of water, fire and air) is supposed to persist through higher and higher earthy composites and is found to be markedly present in what are called the final composites, such as jars, trees,

[24] NVTT., III. i. 28, p. 364.
[25] VUp., IV. ii. 4.

human organisms, etc. Similarly, atoms of earth also can function as supportive (*upaṣṭambhaka*) factors in relation to atoms of the other substances and thus help in the formation of aqueous, igneous and aerial bodies.

Dyads combine by threes to form triads, the elementary gross composites ; and the triads combine in varying numbers to form larger composites, *i.e.*, grosser bodies. Now, the atoms of a particular material substance as well as the dyads composed of those atoms possess only the generic character of that substance. What is called specific class-character (*avāntarajāti*) resides, in the last resort, in a triad, and not in a dyad or an atom, although the specific qualities of a triad are due to similar qualities in the component dyads or atoms. To be explicit, every specifically distinct type of gross matter is necessarily a compound and requires, for its existence with its specific character, a certain minimal volume, which, in the Vaiśeṣika view, is represented by the triad. A triad of sugar, for instance, is the smallest bit of sugar. It derives its characteristic qualities, sweetness, whiteness, etc., from the dyads or atoms that constitute it. But there is nothing of the character of sugar in those dyads or atoms. The specific character of a triad is thus accounted for not by its specific qualities but by its structural peculiarity resulting from a particular grouping or collocation (*vyūha*) of dyads. The particular grouping in each case is determined by *adṛṣṭa*,—that metempirical force which requires gross bodies of *different* types to be formed for serving certain definite moral ends.[26] It is because of this difference in the grouping of dyads that a triad of sugar differs in function and character from a triad of poison, although each of them is an earthy composite consisting of three dyads or six atoms of earth as its constituent stuff. We have, therefore, to assume practically infinite varieties of collocations of dyads to explain infinite varieties of triads corresponding to countless types of sensible material things or final composites.

[26] *Paramāṇvādiṣv aparajātyabhāve 'py adṛṣṭavaśāt tathā tathā vyūho yathā yathā tadārabdheṣv aparajātayo vyajyante.* NK., p. 32.

2. The Theories of Intransitive and Transitive Causation (*Ārambhavāda and Ārabhyārambhakavāda*)

If we carefully examine the logical implications of the theory of causation that has formed the basis of the explanation of the formation of gross bodies, we shall find that the series of causes and effects presents the spectacle of detached and discontinuous units. Thus the atom at the bottom has got its own causal function, which is exhausted upon the production of a dyad ; the causal function of the dyad is exhausted upon the production of a triad, and that of the triad upon the production of a still grosser body, and so on. There is no continuity of a single cause or its operation through this series. The cause ceases to function as soon as the effect is produced and then is gathered up into the effect. The effect, again, functions as a cause with regard to a second effect, but it ceases to function as soon as the effect is produced, for it is then completely absorbed by that effect. Thus it is patent that no particular cause is responsible for a series of effects. On the other hand, the cause is succeeded by the effect, which, again, plays the *rôle* of a cause with regard to its immediate successor, and that, again, with regard to another, and so on until we reach the limit, which is purely an effect and not the cause of anything, called the final whole (*antyāvayavin*). This theory of causation is known as *ārambhavāda,* which we propose to render as the theory of intransitive or discontinuous causation. But we come across another theory of causation called *ārabhyārambhakavāda,* which may be rendered as the theory of transitive causation.[27] This theory has been adversely criticized in

[27] We take the liberty of using this happy terminology of Professor McTaggart who distinguishes three types of relations, *viz.,* transitive, intransitive and not transitive. ". . . . every relation is such that, if A stands in it to B, and B to C, then either A must stand in it to C or cannot stand in it to C, or may or may not stand in it to C. If A is the ancestor of B, and B of C, then A is the ancestor of C. But if A is the father of B, and B of C, then A cannot be the father of C. And if A is the first cousin of B and B of C, then A may or may not be the first cousin of C. Thus we have the classes of Transitive, Intransitive and simply Not Transitive relations." (McTaggart : *The Nature of Existence,* Vol. I, pp. 84-85).

the standard works of the school, because it directly contradicts the orthodox theory that has been explained by us while discussing the formation of gross bodies. It advocates the continuity of causal function of the ultimate cause, *viz.*, the atom. It holds that two atoms which combine to make a dyad do not become defunct as soon as the dyad is produced. Although constituents of a dyad, they act like free atoms and directly produce a triad through combination with a third atom. In the same way, the three atoms of the triad unite with a fourth atom in order to form a tetrad (*caturaṇuka*). This process of successive addition of one atom to each preceding aggregate goes on till the causal series is completed.[28] This view is claimed to be confirmed by the testimony of experience. In a piece of rope, for instance, we discern the presence of twisted strings, which shows that the strings have not lost their self-identity in the rope. It stands to reason to think that two strings combine to produce a thin rope, and the same two strings of the thin rope together with a third string produce a thick rope, and so on.

Here, however, the old question may be raised again that, if it is the atoms alone that are held to be ultimatetly and directly responsible for the production of a gross body, say a triad, what is the necessity, in this hypothesis, to introduce the concept of a dyad as the first product of atoms, intervening between the atoms and their second product, the triad? It would be logically more economical to dispense with the dyad altogether, or in the alternative, to suppose, as the orthodox Vaiśeṣikas do, that causality in respect of the triad really vests in the dyad, in which are held together its two constitutive atoms whose activities have been exhausted with the production of the dyad.[29] The advocate of the transitive theory of causation, however, holds that atoms can acquire the capacity for the production of a triad only after having previously

[28] *Tathā hi paramāṇubhyāṃ dvyaṇukam ārabdham, tasminn avinaṣṭe tābhyām evā 'nyaparamāṇusahitābhyām anyad ārabdham, punar anyaparamāṇusahitair anyad ārabhyate.* VV., p. 230.

[29] *Setu,* p. 219.

produced a dyad. In other words, it is only as constitutive elements in a dyad (so long as it does not disintegrate) that atoms can function as the cause of a triad. The dyad, therefore, is not a superfluous entity. Its liquidation means the suspension of the causal activity of the atoms and their reversion to a state of mere potentiality, resulting inevitably in the dissolution of the triad produced by those atoms.

The orthodox Vaiśeṣika, however, points out that such a theory, if it is to be consistent, must admit the dyad also to be a formative cause of the triad, because, firstly, the emergence of the triad and its continued existence are found to be conditioned by the co-extensive existence of the dyad as an active principle, and, secondly, the atom which *ex hypothesi* is the cause of the triad can exercise its causal function only in association with, and with the help of, the dyad. It is a truism that for the production of a substance the presence of formative causes (*samavāyikāraṇa*) and their conjunction, which is called the non-material cause (*asamavāyikāraṇa*), are necessary antecedents. So, if the atom and its effect, the dyad, are both supposed to be the formative causes of a triad, it must be shown that these two causes are *conjoined*. But can we suppose them to be conjoined? The relation between the dyad and the atom is obviously one of inherence (*samavāya*), and not of conjunction (*saṃyoga*)[30]. Moreover, the original atom being the substratum of the inhering dyad, the latter cannot exist independently of the former, because inherence is a relation which binds the relata inseparably together. Besides, the constitutive atom is gathered up in the dyad when the latter is produced and cannot, therefore, be said to have a separate existence so long as it is a part of the dyad. So the question of conjunction between them cannot arise, and consequently the causal function of the original atom in respect of a subsequent effect (triad), other than its immediate product (dyad), cannot be pressed forward as a possibility. But the advocate of the tran-

[30] *Dvyaṇukaparamāṇubhyāṃ tryaṇukārambha iti cen na . . . . . . dravye saṃyuktānām eva samavāyikāraṇatvāt, paramāṇudvyaṇukayoś ca samavāyitvāt. Ibid.*

sitive theory of causation maintains that the terms of the relation of inherence do not lose their self-identity in spite of the fact that they are inseparably held together. The emergence of a whole even as a distinct substance does not entail the disappearance of the parts in which the whole inheres. This is evidenced by the fact that the yarns are recognized as separate entities even when they are the constituents of a cloth.[31] Nor should there be a difficulty with regard to the question of conjunction. When the original atom does not cease to exist as an independent entity in spite of the fact that it forms a part, and when the dyad also is to be regarded as a distinct substance, the possibility of conjunction between them cannot be denied. But the admission of this possibility involves another difficulty which arises from the consideration of the fact that a produced substance is necessarily found to inhere in its formative causes. In conformity to this rule, the triad, being the product of the conjunction of the atom and the dyad, must also inhere in the atom. Thus the atom would be the substratum not only of the dyad but also of the triad. But a substance cannot serve as the common substratum of two independent substances having limited magnitude. We cannot conceive two chairs or two tables occupying one and the same part of space.[32] In reply, it is said that the objection has force only when the relation of each of the two substances to the common substratum is one of conjunction. But the relation of the triad and the dyad to the constitutive atom is not conjunction but inherence. So there is no difficulty in the theory of transitive causation which holds that the atom is the cause of the dyad and of the triad as well, the triad being admitted to be the effect of the dyad also.

But the arguments which have been advanced in support of the theory of transitive causation appear to be based upon a flagrant misreading of the nature of the relation between a part and a whole. The existence of two limited substances in

[31] NLV., p. 827.

[32] *Na pūrvottarakāryadravye samānadeśe, mūrtatvāt ghaṭādivat.* NV., II. i. 31, p. 237. Also *vide Setu*, p. 219.

one substratum is, in any case, an impossibility. Only a quality can co-exist with a substance in a common substratum. Thus the colour of a yarn and the cloth of which the yarn is a component are both found to inhere in the yarn. But the cloth cannot be supposed to exist with the yarn in the substratum of the latter. The rule of mutual exclusiveness of finite substances holds good irrespective of the relation in which they stand to the substratum concerned. The necessary character of this rule is confirmed by the fact that a substance precludes, as a matter of necessity, the production of another substance in its substratum.[33] Thus a piece of cloth produced from a number of yarns prevents, so long as it exists, the emergence of another piece of cloth from the same particular yarns. But the advocate of transitive causation may urge that the objection holds good against two substances of exactly equal magnitude and does not affect substances of unequal magnitude, which may co-inhere in one substratum. A triad possessing a greater magnitude may, therefore, inhere in an atom together with the dyad which is admittedly of lesser magnitude than it.[34] The advocate of the orthodox theory points out in reply that there is absolutely no logical ground for drawing a line of distinction between a substance as a term of the relation of conjunction and the same as a term of the relation of inherence. The question of inequality (*nyūnādhikadeśatva*) of substances is also irrelevant. The nature of substances of limited magnitude, whether equal or unequal, is such that one of them necessarily excludes another from its own substratum. No departure from this rule has been observed, and so the attempt to make an exception in the case of inherence is to ignore the testimony of experience. It is a simpler and more intelligible hypothesis to think that substances of limited magnitude cannot co-exist in a common substratum, whether their relation to the substratum is one of conjunction or inherence.[35] The very conception of limited magnitude carries with it the neces-

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[33] *Dravyasya svāśraye dravyotpattipratibandhakatvāt.* NLVP., p. 828.

[34] NLV., p. 828.

[35] NVTT., IV. ii. 24, 459.

sity of a thing possessing it excluding another thing from its sphere. The coalescence of two substances, on the other hand, which the co-existence of two substances in a common substratum necessarily involves, would make them one substance. It is, therefore, held by the orthodox Vaiśeṣika that the dyad and the triad being different substances must each have not only a distinct self-individuality but also a distinct locus of its own ; otherwise they would cease to exist as different substances. So they cannot both be supposed to have the same atom as one of their formative causes.[36]

Moreover, the theory of transitive causation introduces a clumsiness and a complexity which are absent in the orthodox theory. It requires us to believe that the same cause produces different effects, subject, of course, to the association of different accessories. This is certainly not an unusual phenomenon. The flame of a lamp is found to consume oil, burn the wick and illumine the room. These different effects are, however, produced either simultaneously or in the quickest possible succession. The association of the different materials is, of course, a necessary condition. The cause being one singular entity, a plurality of natures cannot be attributed to it, and so the diversity of effects must be accounted for by the diversity of auxiliary (*sahakārin*) factors.[37] But in the theory under discussion, the auxiliary factors that are supposed to account for the production of different effects are not found ready-made, but are produced in succession by the causal efficiency of the atom which they are supposed to help. The atom produces the dyad, but this dyad which is the effect of the atom is then supposed to function as an auxiliary to its own cause. But this is surely an unusual phenomenon that the effect should help the cause and enable it to produce a second effect.

Besides, if the production of the immediate effect does not exhaust the causal efficiency of the cause, and if the causal efficiency is supposed to operate further and further on, we

[36] *Setu*, p. 219; VV., pp. 230-231.
[37] NKu., pt. I, pp. 87-88.

cannot suppose that it will exhaust itself somewhen and somewhere. But the causal efficiency of anything cannot be conceived to be inexhaustible. If, therefore, a limit is to occur at some point, there is no reason to deny that this limit will be furnished by the immediate effect. Finally, the independent existence and the causal efficiency of a part in a whole do not seem to be in harmony with any rational explanation of the relation of the part and the whole. The parts form a whole and cease to function independently after the whole is produced. When this whole enters into the composition of a bigger whole, the latter is held to be produced by the former, and not by the parts thereof. It is, therefore, concluded by the Vaiśeṣika that the atom ceases to function as soon as it gives rise to and is gathered up into the dyad. And so with regard to the dyad in its relation to the triad. But the conception of transitive causation necessarily involves a disregard of all these considerations and makes the causal relation unnecessarily complex, without introducing any advantage which is not possessed by the orthodox Vaiśeṣika theory which it seeks to supersede.[38]

[38] All the three theories of causation discussed in this chapter have been referred to by Śaṅkarācārya in his *Śārīrakabhāṣya* on the Sūtra II. ii. 11. The reference is a clear testimony to the historical authenticity of these theories, which is confirmed by the criticism of the theory of direct causality of atoms and of the theory of transitive causation by such acknowledged authorities of the Nyāya-Vaiśeṣika school as Uddyotakara, Vācaspati, Udayana and Vallabha. The overwhelming popularity of the theory of intransitive causation has succeeded in ousting its rivals so completely that they are not even seriously considered by the majority of present-day students of Vaiśeṣika philosophy. We have, therefore, felt it necessary to discuss these theories as elaborately as the available materials have permitted. There can be no doubt about the fact that Śaṅkarācārya's representation of the Vaiśeṣika position contains a record of actual theories, and not of bare possibilities, as hinted at by the commentators. The relevant statement in the Bhāṣya is as follows :—

Yadā 'pi bahavaḥ paramāṇavo bahūni vā dvyaṇukāni dvyaṇukasahito vā paramāṇuḥ kāryam ārabhate tadā 'pi samānai 'ṣā yojanā.

CHAPTER V

QUALITATIVE CHANGES IN EARTHY BODIES

1. The Problem and its Relevancy

The theory of the Vaiśeṣika that we propose to discuss in this chapter has been introduced in the original texts in connection with the problem of the emergence of novel qualities in finished earthy bodies due to the action of heat (*pākajaguṇa*). The problem is primarily discussed in its bearing upon the law of causation with reference to qualities. Is the quality of the whole due to the causal influence of the quality of the parts, and, in the final analysis, of that of the constitutive atoms? The Vaiśeṣika holds that the quality of the composite product is, as a rule, produced by the corresponding quality of the constitutive cause (*kāraṇaguṇapūrvaka*).[1] The Naiyāyika agrees with the Vaiśeṣika on this fundamental issue, but differs from the latter with regard to a particular class of events, *viz.*, the emergence of novel qualities in earthy bodies due to the action of heat. It may seem an unjustified departure from the time-honoured method to introduce this problem in connection with the formation of gross bodies, and it may be argued that the problem should be discussed under the topic of qualities and not of substances, in conformity with the procedure of the original writers of the school. But our apology is that, though this topic has got an important bearing upon the causal relation of qualities, the solution of the problem is intimately bound up with the theory of composition of bodies, which we have discussed in the preceding chapter. The problem is sought to be solved in terms of the disintegration of bodies into their

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[1] VS., II. i. 24; PPBh., p. 98.

The emergence of new qualities in an earthy atom is, however, held to be due to the action of heat. These qualities of the atom cannot be said to be produced by similar qualities in its material cause, since the atom *ex hypothesi* is an eternal, uncaused entity. *Vid.* NK., p. 98.

primary constituents, the atoms, and the reconstitution of the bodies through the process of redintegration of the atoms into dyads, and of the dyads into triads, and so on. The discussion of this topic is thus calculated to throw helpful light on the important question of the relation between the constitution and the specific qualities of some material bodies.

2. The Doctrines of Pīlupāka and Piṭharapāka

An unbaked earthen pot is of black colour, but after it is burnt in the potter's furnace it becomes red all over, both inside and outside.[2] This simple phenomenon has become the subject of a storm of controversy between the Naiyāyika and the Vaiśeṣika who, however, are in agreement upon almost all the fundamental philosophical problems. The problem that is debated arises in this way: In the first place, does the pot undergo a complete disintegration when worked upon by fire in the furnace, or does it remain intact in its structure? In the second place, does the change of colour from black to red take place in the atoms, or in the body with its structure intact? Praśastapāda and other writers of the Vaiśeṣika school present the Vaiśeṣika position as follows:[3]

When an unbaked earthen pot is put in fire, the latter either strikes hard against, or exerts strong pressure upon, the pot. In either case, the fire acts with such violence and velocity upon the pot that it at once penetrates into the body of the pot and produces a violent motion in the atoms constituting the pot.

[2] The earthen pot, here typifies all earthy objects, including even animal organisms. Although we have referred only to change of colour, it must be borne in mind that it is not the colour alone but taste, odour and touch also that are subject to change under the influence of heat. The change of all these qualities can be illustrated by the example of a fruit. A green mango has a dark colour, a sour taste, an acid odour and a hard touch. When this mango ripens due to the action of solar heat, its dark colour is changed into yellow, its sourness into sweetness, its acid odour into fragrance, and its hardness into softness.

[3] PPBh., p. 106; NK., p. 107; KV., p. 183; VUp., VII. i. 6; NM., pt. II, pp. 11-12.

This motion destroys the conjunction (*ārambhakasaṃyoga*) of the atoms, which is followed by the splitting up of the dyads into constituent atoms. When the body of the pot is thus completely disintegrated into atoms, a second impact (or, it may be, pressure) of fire upon the isolated atoms destroys the black colour in them and reduces them to what may be called their original or natural condition. In this condition, all earthy atoms, irrespective of the bodies arising out of them, are homogeneous and possess only those original qualities which characterize the earth-substance as such (*pṛthivībhūta*). A third impact of fire, at this stage, produces the red colour in these atoms. Thereafter, owing to the influence of the unseen destiny (*adṛṣṭa*) of the individual self or selves who will be benefited by the pot produced, a reverse motion is produced in the liberated and homogeneously transformed atoms, which joins them together by twos. Thus red dyads are produced. Then the combination of the red dyads eventuates in the corresponding triads, and the continuance of the process of combination ultimately results in the production of a red pot of the original magnitude and shape.

What appears to an ordinary observer to be a simple change of colour in an earthy body is thus, according to the Vaiśeṣika, a long series of chemico-physical events. The chief merit of this complex hypothesis, which is also the chief inducement for resorting to it, is its strict adherence to the dictum that the quality in the effect is necessarily the outcome of the corresponding quality of the cause. This dictum is held by the Vaiśeṣika to be universal in its application. The Naiyāyika's theory, which will be presently explained, is guilty of offending against this rule. But the Vaiśeṣika would maintain that if any deviation from this rule is allowed even in a single instance, there will be no check against its extension to admittedly unwarranted cases. If the quality of the product be not determined by the quality of the cause, it is not possible to explain why from a combination of blue yarns a textile of white colour is not produced. The validity of this rule shows itself in all cases that come within our experience, and there is absolutely no reason for a departure from it in the case of the qualities

produced by heat. Before we proceed to examine the Naiyāyika's theory, we propose to see how the Vaiśeṣika seeks to establish the logical necessity of every stage of the causal operation that results ultimately in an earthy body changing its qualities.

The questions which naturally arise in this connection and call for explanation are: Firstly, why should the disintegration of the body into atoms be insisted upon? Secondly, why should a succession of impacts of fire be postulated? In other words, why should not the same impact of fire be held to produce in succession the disintegration of the body, the destruction of black colour in the atoms and the production of red colour in them? Thirdly, why does not the motion of the atoms for reintegration take place just on the cessation of black colour? We propose to answer the questions seriatim from the Vaiśeṣika standpoint.

The disntegration of a body into atoms is a necessary precondition of the emergence of a novel quality in them. The production of a new quality is possible only in a substance which is in a free state and is not inside a whole as a part of it. The colour of the yarns, for instance, is not produced after they are integrated into a textile, but before such integration takes place.[4] The disintegration of the body is also to be inferred from the disappearance of the previous black colour. The colour of a body is destroyed only on the destructon of its substratum, as is seen in the case of the colour of a burnt textile. The disappearance of the colour, here, is due to the destruction of the textile. The rule holds good in the case of the colour of all composite bodies. It follows, therefore, that the destruction of the black colour in the unburnt pot is possible only if its substratum, *i.e.*, the pot, is destroyed.[5] But it may be appropriately questioned: Why should the destruction of the colour be posited at all, from which you infer the destruction of the body? The answer is that a second colour cannot be produced in a body which is not divested of

[4] NK., p. 108.
[5] KV., p. 134; VV., p. 449.

its previous colour.[6] The rule is absolute, particularly when there is a natural opposition between the colours in question. There can be no combination or coincidence of red and black. If we precisely observe the incidence of colour, we are bound to hold that no two different kinds of colour can ever coincide. The instance of a variegated substance is not an exception, because the substance in question is held to possess not a multiplicity of colours but one particular variety of colour styled variegated (*citra*).[7] To sum up, the disintegration of the body is proved by the destruction of the original colour, which, again, is proved by the emergence of a new colour. The disintegration of the body is an inescapable conclusion also because the impact of fire cannot be confined to a part of the body. The reason is that, if the entire body is not worked upon by fire, the cessation of the original colour in all the parts of the body will not occur, and consequently the change of colour will not take place. If, therefore, the impact is to spread over the entire structure of the body, the contact of fire with the pot in question must be held to embrace even the constitutive atoms. If that be the necessary conclusion, then there is no reason to suppose that the body will not be disintegrated when the violent impact of a tactile substance, which is invariably the cause of disruption of composite bodies, is present in the shape of the impact of fire.[8] Moreover, the absence of disintegration will fail to explain the emergence of a new quality which is not caused by a corresponding change of quality in the cause.[9]

We now take up the second question. The answer is that for a series of effects a series of causes must be postulated. The first impact of fire is necessary to bring about the disintegration of the body into atoms. The second impact is necessary for the destruction of the previous colour in the

[6] *Ibid.*
[7] NK., p. 30.
[8] KV., p. 185.
[9] *Ibid.*

isolated atoms. Apart from the question of logical necessity, it offends our common sense to suppose that a single contact of fire should persist for a length of time ; fire, after all, is not a static body, and the impact of one particle of fire will necessarily be followed by that of another particle.[10] Moreover, it is a matter of common experience that the destructive agent never functions as a productive agent with regard to the same event. Thus, for instance, it is seen that the cause of the colour of the yarn is different from the cause of the destruction of that colour.[11] If the productive cause be held to operate also as the cause of destruction, as a matter of rule ; or, to be more precise, if the same impact of fire be both productive and destructve of colour by its very nature, then the atom will ever remain destitute of colour after the impact of fire has ceased,—an absurd issue in all conscience. But this consequence becomes inevitable, because the impact of fire which destroys the previous colour and produces the second colour will also destroy the latter, it being, by its very nature, destructive and productive in one. In other words, the capacity for destruction and that for production being inherent in the selfsame entity, one cannot work without calling into play the other which is believed to be its correlate. Having thus inevitably destroyed the colour produced by itself when the impact of fire will itself be destroyed, there will be no other agency to invest the atom with a fresh colour. It thus follows that the destruction and the production of colour in the atom are due, not to one and the same impact of fire, but to numerically different impacts.[12]

As for the third question, it need not cause any difficulty, because the assumption of colourless atoms does not explain the formation a body having a distinct colour. So the reverse motion with a view to their recombination must be supposed to

[10] *Na cai 'tāvantaṃ kālam eko 'gnisaṃyogo 'nuvartitum īṣṭe, tejaso 'vilambena gamanaśīlatvāt. Ibid.*, p. 184.

[11] NK., p. 108.

[12] KV., p. 184; NLVP., p. 834.

set in only after the emergence of the red colour has taken place.[13]

The Vaiśeṣika thus adopts what is called the theory of *pīlupāka,* according to which the emergence of new qualities due to the action of heat takes place in the isolated atoms (*pīlus*).[14] The Naiyāyika advocates a quite different theory; it is known as *piṭharapāka,* which signifies that the change of qualities due to the action of heat takes place in the whole body (*piṭhara*) remaining structurally intact.[15]

That the change of qualities takes place in the undecomposed whole is sought to be established by the Naiyāyika by a number of arguments. Firstly, we perceive a pot remaining structurally intact even when it is being burnt by fire inside the potter's furnace.[16] When the burnt pot is taken out from the furnace, it is recognized to be the same pot that was unbaked formerly. This recognition of the identity of the baked pot with the unbaked one is not invalidated by a subsequent experience, and so it must be held as conclusive proof against the Vaiśeṣika view which regards the two pots to be entirely different, both numerically and qualitatively.[17] Secondly, if the Vaiśeṣika theory of decompositon of bodies due to the action of heat be a valid account, then it will be extremely difficult to explain how the pot maintains its position when it is put on the oven which also is undergoing disintegration due to the action of heat, according to the Vaiśeṣika theory.[18] The Vaiśeṣika may avoid this predicament by the hypothesis that the dissolution into atoms is quickly followed by reintegration, and so the pot does not tumble down. But this is a case of special pleading in support of a favourite theory and fails to carry conviction, particularly in view of the fact that the interval between the dissolution and the reintegration is not so small

[13] NK., p. 108.
[14] Vup., VII. i. 6.
[15] *Ibid.*
[16] VV., p. 447.
[17] *Ibid.*
[18] *Ibid.*

as the Vaiśeṣika seeks to make us believe. This will be clear from the calculation of the interval made by the Vaiśeṣika himself, which will be discussed in the next section of this chapter. In the third place, the theory of wholesale destruction and re-creation will make it extremely difficult for us to explain how the reconstituted pot should have the same magnitude and shape as the original unbaked pot.[19] In the fourth place, it seems to be an inexplicable mystery that, though the unbaked pot is entirely destroyed and an absolutely new pot is created, the latter should be found to remain exactly in the same position in which the former was placed.[20] The change of position is, however, a matter of natural expectation, as is seen to be the case with bubbles of water among which the disappearance of one is followed by the appearance of another, but not necessarily in the same place.[21] In the fifth place, the re-creation of the pot from the atoms into which the old pot was dissolved is supposed to take place without the help of the usual apparatus, for instance, the wheel, the staff, the measuring rod, etc., and also without the activity of the potter. But these are found to be the essential conditions for the production of a pot in the ordinary course of experience. The production of the baked pot, as in the Vaiśeṣika theory, is therefore, nothing but a miracle, because the accepted law of causation is here given a wide berth.[22]

As regards the question as to how fire can act upon the entire body of the pot, inside and outside, if the pot remains structurally intact, the Naiyāyika meets it by pointing out that the pot is a porous body, and so there is no difficulty for particles of fire effecting entry into its structure through its pores. The porosity of the pot is an undeniable fact, otherwise the oozing out of water particles or the coolness of the outer

[19] *Ibid.*

[20] *Ibid.*

[21] NP., p. 312.

[22] *Na ca ghaṭāder vināśe karmādibhir vinā punar utpattir yuktā.* VV., p. 447.

surface cannot be accounted for.[23] The conduction of heat is another proof of the porosity of an earthy body, for, when heat is applied under the pot, it is seen to boil the water or fry the paddy inside the pot without affecting the pot in any way (by way of decomposition and recomposition). Thus the entry of fire into the pot is not obstructed by the pot. Nor can it be argued that the entry of fiery particles will necessarily split up the structure of the pot, because the pot is not an absolutely compact and impervious body which might resist the penetration of fire. Though a mass of fire cannot, its minute particles can enter through the pores of the body, and thus the baking of the entire pot, inside and outside, is made possible.[24]

Śrīdhara contends that the porosity of the pot is not beyond dispute. Atoms are not porous, because they are indivisible ; nor can the dyad be supposed to be porous, because that would imply that the atoms constituting the dyad were not conjoined. The conjunction of atoms in a dyad cannot admit of a gap between. It is only the composite and extended things that can be partially conjoined, thus leaving open the possibility of a gap. This is, however, impossible in the case of atoms. Nor can the conjunction of dyads in a triad be supposed to leave unoccupied space between, because dyads also, like atoms, are devoid of extensity. So the pot must be held to be a compact body. If, therefore, fire is to reach the inside of the body, it can be possible only if the constitutive dyads are split up into atoms, thus making way for the access of fire.[25] But the Naiyāyika observes that the possibility of the interval between triads cannot be ruled out, as their conjunction must be in respect of parts. Moreover, the light of the visual organ is found to penetrate through such transparent bodies as glass and crystal and to come in contact with things situated beyond. The passage of light through such hard bodies is proof positive that things which appear to be compact are not really so, and

[23] VUp., VII. i. 6.

[24] NV., III. i. 4, pp. 355-356; NM., pt. II, p. 12; Cit., pp. 312-313; VV., p. 448.

[25] NK., p. 109.

that they cannot resist being penetrated by such fine things as atoms of light.[26] This fact also proves that the passage of one material substance through another does not necessarily presuppose the dissolution of the latter. The Naiyāyika, therefore, concludes that the wholesale decomposition of the body is not a necessary pre-condition for the action of heat, and consequently for the emergence of novel physical qualities.

It has been further argued by the Vaiśeṣika that the unbaked pot is soft to touch and black in colour, while the baked one is hard and red. Their functional characteristics are also different. The unbaked pot, for instance, cannot be used in drawing water from a well, which is done with the baked pot. As the occurrence of these contradictory attributes is not possible in a self-identical substance, the baked pot must be held to be a distinct entity from the unbaked one. The Naiyāyika does not appreciate the cogency of this argument; for, according to him, the identity of a thing can be established only by recognition, provided it is not contradicted. In this case the recognition of identity is obvious and conclusive. As for the possession of contradictory qualities, it will suffice to say that the successive emergence of such qualities does not annul the identity of a thing.[27] Examples are not lacking in support of this position. A piece of cloth becomes wet when drenched in water and dries up when exposed to the sun, and still remains the same. The Vaiśeṣika contends that recognition is not necessarily a proof of identity, as it is found to err in such cases as the flame of light and the stream of water. This, however, seems to be the argument of despair. The recognition of identity of the flame of light is vitiated by powerful reasons. The difference of size of the flame at different moments is directly perceived, and the wick, oil and the action of fire are found to change every moment. So the

[26] *Yadi cā 'nupraviśya dravyaṃ dravyāntaraṃ vyatibhinatti tena cākṣuṣasya raśmer anupraveśāt sphaṭikādi vinaṣṭam iti.* NV., III. i. 4, p. 356; *cf.* Cit., p. 312.

[27] *Na viruddhasaṃsparśavattvenā 'vayavino bhedo 'bhimataḥ, avayavina ekatvena pratyabhijñānāt.* NP., p. 313.

difference of the causal conditions as well as of the qualities of the flame irresistibly proves that the flame in question is not one, but a series of phenomena which are mistaken to be identical owing to their quick succession and close similarity. The apparent identity of a stream of water admits of a similar explanation. But the conclusion cannot be drawn from these cases of aberration that all recognitions are equally erroneous. In the case under discussion, no such vitiating circumstances are noticeable, and so the attempt of the Vaiśeṣika to dismiss the evidence of recognition in the case of the baked pot appears to be inspired more by bias than by logic.[28]

The Vaiśeṣika, however, does not regard the argument based on the recognition of the sameness of magnitude, shape, number and position as a formidable objection against his theory. He points out that even the advocate of the theory of *piṭharapāka* admits the possibility of the recognition of the sameness of magnitude and shape in the case of a slightly mutilated pot. When, for instance, a pot is perforated with a needle in the neck, it is believed to be the same pot in spite of the mutilation. But logically considered, the pot, being deprived of a part of its body, however small, cannot be held to be the same whole.[29] This will be manifest from the consideration of the relation of the part and the whole. The whole exists in the totality of the parts and cannot dispense with any of these parts without losing its identity. If, therefore, there is, a loss of one or two parts, it follows that the whole which existed in the total number of parts has ceased to exist, and another whole composed of a smaller number of parts has superseded it. It has been argued by the Mīmāṃsaka[30] that the loss of one or two parts does not entail the disappearance of the whole, as the recognition of identity proves its continuance in the parts that are left over. But this contention proceeds from a misconception of the relation of the

[28] Cit., p. 313.

[29] KV., p. 188; NLV., pp. 831-832; VUp., VII. i. 6; KR., p. 60.

[30] The Mīmāṃsakas appear to be the earliest exponents of the doctrine of *piṭharapāka*.

part and the whole, as has been mentioned above. How can a whole which exists in a determinate number of parts continue to exist if there be an excision or accretion of a part or two? The Mīmāṃsaka has trotted out the example of a piece of cloth which undergoes diminution of magnitude due to contraction. But contraction or expansion does not mean a subtraction or a fresh accession of parts, and so the argument does not affect the position of the Vaiśeṣika.[31] The Vaiśeṣika further observes that the objection regarding the absence of the potter and his apparatus should not present an insurmountable difficulty. In the case of the mutilated pot, it has been shown that the old pot has ceased to exist, and a new pot has come into existence without waiting for the potter and his operation of his apparatus. Accordingly, we must hold, the Vaiśeṣika remarks, that the creation of a new pot in supersession of an old one does not necessarily stand in need of the usual causal conditions.[32]

Moreover, the appearance of the pot as an integrated whole, even when it is actually undergoing disintegration due to the action of fire, has, according to the Vaiśeṣika, a very cogent explanation. The pot is not directly resolved into atoms, for that would mean its complete disappearance before the emergence of the reconstituted pot. The process of disintegration is gradual and through parts, and so also is the process of reintegration. At each stage, therefore, when some parts are undergoing destruction, fresh ones are emerging with changed qualities. The synchronism of these two processes is responsible for our failure to distinguish the reconstituted pot from the disintegrated one. This also explains why no structural or dimensional change is noticed in the reconstituted pot.[33]

In winding up this discussion it may be observed that the Vaiśeṣika theory, in spite of its ingenuity, has failed to enlist the support of the majority of thinkers. The pivotal argument of the Vaiśeṣika is that the violent action of fire and its extra-

[31] KV., pp. 188-189; VUp., VII. i. 6.
[32] VV., p. 448.
[33] NK., p. 110.

ordinary heat will inevitably lead to the dissolution of the structure of an earthy body like that of a pot. The plausibility of the argument cannot be denied, but it seems that the Vaiśeṣika has missed a vital point in disregarding the full significance of the varying effects of the varying degrees of heat upon an earthy body. That heat admits of varying degrees of intensity is, of course, admitted by him,[34] but this admission by itself does not solve the difficulty ; for, according to him, whatever be the character or amount of heat applied to a pot, the whole process of decomposition and recombination of its atoms will invariably follow, resulting in the emergence of a new pot exactly similar in structure and size to the old one.[35] In actual experience, however, we find that a pot maintains its structural integrity in fire so long as the intensity of heat is within a certain limit, and if the limit is exceeded, we do not find the pot (even though it be a reconstituted pot, as the Vaiśeṣika maintains) in an unimpaired condition. This shows that the amount of heat that is required to bake a pot does not lead to its dissolution, which would follow if the limit were exceeded.

Secondly, the logical necessity which compels the Vaiśeṣika to resort to his complicated theory has been simply avoided by the Naiyāyika, who excludes the present case from the scope of the law of qualitative causation. Ordinarily, the quality in the effect is generated under the influence of the quality of the cause. This law holds good, subject to a proviso, *viz.*, the absence of a counteracting factor (*bādhaka*) in the form of the action of heat. The change of colour from black to red in the pot can be logically explained by reference to the action of heat. And this is admitted in the case of atoms by the Vaiśeṣika himself. If heat can destroy an existing quality and

[34] The Vaiśeṣika recognizes such varying degrees of heat as *khara* (intense), *madhyama* (moderate) and *mṛdu* (mild).

[35] The intensity or degree of heat and the specific nature of its action are supposed to determine what new physical qualities (colours, tastes, etc.) will be produced in the disengaged, homogeneous atoms.

produce a novel quality in an atom, there is conceivably no logical bar to the supposition that the transition of qualities can as well take place in the body as a whole. The penetration of fiery particles through the interstices of the component factors of a pot has not been successfully proved by the Vaiśeṣika to be an impossibility. The Naiyāyika seems to be quite correct in his view that bodies are porous. The exudation of moisture in a pot filled with water, which is a matter of common experience, is incapable of explanation unless the porosity of the pot is admitted. The Naiyāyika's theory is thus seen to be more convincing and in greater conformity with the demand of common sense. The charge of miraculous production, which the Naiyāyika has advanced against the Vaiśeṣika, does not seem to have been successfully refuted by the latter. The argument based on the changed identity of the mutilated pot seems to be more ingenious than convincing. Besides, the analogy is not on all fours. A slight mutilation and a complete dissolution cannot be supposed to involve the same pragmatic consequences, although theoretically the change of identity of the whole is not denied.

3. Vaiśeṣika Speculations on the Time required for Qualitative Change

In the Vaiśeṣika view, heat cannot directly produce any qualitative change in a composite. Even the dyad itself, which is the primary composite, must be disintegrated into its constitutive atoms before the process of change may start. As a sequel to the theory of *pīlupāka*, the Vaiśeṣika has given us interesting speculations of a mathematical character regarding the length of time taken by the activity of the disengaged atoms, which ultimately leads to the formation of a new dyad with changed qualities. The question has been raised: How many moments elapse from the destruction of the old dyad to the creation of a new one? The duration has been computed in various ways by the introduction of possible variations of circumstances, and different results have been reached.

In one method of calculation, the duration is found to be nine moments, subject to two conditions, *viz.*, the action or motion is confined to only one of the atoms, and derivative disjunction (*vibhāgajavibhāga*)[36] is not taken into account. Through the impact of fire one of the atoms is set in motion, and it is disjoined from the other atom ; then the cessation of the conjunction which holds the two atoms together in a dyad takes place ; and (1) the destruction of the dyad follows., (2) Next there is the destruction of the dark colour in the atoms. (3) The red colour is then produced in the atoms. (4) Then the movement of one of the red atoms with a view to the production of a new dyad takes place. (5) This is followed by disjunction from the point of space occupied. (6) Then comes the cessation of actual conjunction with the point of space. (7) Next follows conjunction with another atom which *ex hypothesi* is at rest. (8) Then the dyad is produced. (9) Lastly, the red colour is originated in the dyad.[37]

The bare statement of the steps in the process certainly looks like a series of dogmatic assertions. But the Vaiśeṣika has attempted to adduce reasons for every assertion he has made. Unless these reasons and the underlying assumptions are clearly explained, there cannot be any correct estimate of the speculative importance or logical validity of the Vaiśeṣika theory. The following are the postulates which are assumed in this account: (1) Motion is the cause of disjunction (*vibhāga*), which is the cause of the cessation of previous conjunction (*pūrvasaṃyoga-nāśa*), which, in its turn, is a pre-condition of subsequent con-

[36] Disjunction (*vibhāga*) is ordinarily caused by motion. What is called derivative disjunction (*vibhāgajavibhāga*) is not caused by motion, but by a previous disjunction. When one of the two atoms of a dyad is disjoined through its action from the other atom, it is also disjoined from the point of space previously occupied by itself. Here the disjunction of the active atom from the relevant point of space is supposed to be *derived* from the disjunction of the same atom from the other constitutive atom of the dyad. (For further details on the quality of disjunction *vide* Chapter VI.)

[37] KV., pp. 189-190; KR., p. 60; VUp., VII. i. 6.

junction (*uttarasaṃyoga*).[38] (2) Motion ceases as soon as the moving body is brought into contact with something. (3) The disjunction between the components of a body either is or is not concomitant with the disjunction of the components from the points of space, previously occupied by them. In the former alternative, derivative disjunction is not admitted. The second alternative makes the admission of it necessary.

In the process of nine moments, the destruction of the dyad takes place at the first moment, synchronously with the moving atom coming into contact with a different point of space, and so, in accordance with the second postulate stated above, the movement of the atom, which was caused by the impact of fire, is arrested at the immediately following moment, *i.e.*, at the second moment.[39] Now, another movement of the disengaged atom is stated to take place at the fourth moment. It may be questioned why this movement does not take place at the second or the third moment. The Vaiśeṣika points out that this is not possible because there cannot be any fresh movement in a thing which has not yet ceased to move.[40] The cessation of one movement being thus the pre-condition of the origination of another, there can be no movement at the second moment. The movement in question cannot be supposed to set in even at the third moment, although the atom is then at rest, after having established contact with a different point of space ; for there can be no movement for constructive combination (*dravyārambhānuguṇakriyā*) in a substance which is devoid of a quality. So it is only after the red colour has been generated in the atom that the movement concerned can take place. Nor can we presume to shorten the process by one moment by supposing the emergence of red colour to be synchronous with the cessation of black colour at the second moment, because the cessation of the previous colour is also a condition of the production of another colour. Nor can it be supposed that the fresh

[38] Vup., V. i. 16.
[39] Din., p. 417.
[40] *Ekadā ekasmin dravye ekam eva karma vartate.* NK., p. 290.

dyad will be produced vested with the red colour at the eighth moment, because in that case the quality of the dyad would not be caused by the quality of the atoms. But this would expressly infringe the law of causation which requires that the quality of the effect is caused by the quality of the cause only. It might be argued that when atoms and their red colour are both antecedent to the production of the dyad, there is no bar against the dyad being produced together with its red colour. But this possibility is also ruled out by the consideration of the causal relation subsisting between the dyad and its colour. The dyad is the inherent cause of its colour and so must precede the emergence of the latter. Thus each step in the chronological order is unalterable, and the duration of the process beginning with the destruction of the original dyad and ending in the production of a new colour in a new dyad cannot be shorter than a span of nine moments.[41]

In accordance with another method of computation, the duration is found to be ten moments. The first method of calculation proceeds on the supposition that the disjunction of an atom from another atom involves *eo ipso* disjunction from the point of space (previously occupied). The second method of calculation is based upon the view that the disjunction of a component from another component cannot involve disjunction from a non-componental factor (*akāraṇa*), *viz.*, the point of space. The latter disjunction is caused by the former and takes place not at the immediately next moment, but at a subsequent moment. The reason for this assumption is that if disjunction could produce disjunction without depending upon any subsequent positive fact, the definition of motion or action (*kriyā*)[42] would apply to it.[43] So disjunction (of components) can produce disjunction from a point of space only in association with

[41] SM., p. 417; KR., pp. 61-62.

[42] In the Vaiśeṣika conception, action (*karman*) and motion are interchangeable terms.

[43] Action (*karman*) is defined as that which produces conjunction and disjunction independently, that is to say, without depending upon a positive subsequent entity. *Vide* VS., I. i. 17, and VV. thereon.

a subsequent fact. This being the case, the process will have to be restated as follows: As in the previous process, the impact of fire produces motion in the atom that goes to constitute the dyad; this produces disjunction of the atom from another atom; then there is the destruction of the conjunction of the atoms, which is followed by (1) the destruction of the dyad and disjunction of the disjoined atom from the point of space previously occupied. The second disjunction, it should be noted, is produced by the 'componental disjunction' (*kāraṇavibhāga*) in dependence upon the moment at which the destruction of the conjunction of atoms has taken place.[44] (2) Then comes the destruction of the dark colour, and of the previous 'non-componental conjunction'.[45] (3) This is followed by the production of the red colour and conjunction with the neighbouring point of space. (4) Then there is the destruction of the action in the atom, which was produced by the impact of fire. (5) Next comes about the action in one of the red atoms with a view to the production of a new dyad. (6) This is followed by disjunction from the point of space previously occupied. (7) Then comes the cessation of actual conjunction with the point of space. (8) Next follows conjunction with another atom which *ex hypothesi* is at rest. (9) Then the dyad is produced. (10) Lastly, the red colour is originated in the dyad.[46]

Now, with regard to the method of calculation of the duration which is spread over eleven moments, it will suffice to state that the prolongation is due to the supposition that the second (*i.e.*, derivative) disjunction is caused by the previous disjunction in dependence upon the moment of the destruction of the dyad,[47] and not upon that of the destruction of the conjunction of the atoms. So the derivative disjunction takes place at the second moment, and consequently the action for the production of the new dyad takes place at the sixth moment, and

[44] KR., p. 61.

[45] That is, the conjunction of the atom with the point of space occupied by it, which is a non-componental factor.

[46] KV., p. 190; KR., p. 62; VUp., VII. i. 6; SM., pp. 417-418.

[47] KR., p. 61.

thus the final production of the red colour takes place at the eleventh moment.[48] The variation in the result between the second and the third process is due to a difference of opinion regarding the occurrence of the derivative disjunction. It is possible to suppose that the subsequent event upon which the previous disjunction depends for the origination of the derivative disjunction is either the moment of the destruction of the conjunction of the component atoms, or the moment of the destruction of the dyad. The variation in the result is thus due to the supposition of a purely logical possibility, and not to a rigorous logical necessity.

All the three methods of calculation are based upon the supposition that the motion separating the constituents of the dyad is confined to one atom only. But if we conceive action to take place in the other atom also, then the process can be progressively narrowed down from a span of eight moments to a span of five moments. For the sake of convenience the process of the shortest duration, *viz.*, of five moments, is described first. Action takes place (as in the other processes) in one of the atoms ; then there is disjunction ; next the destruction of the conjunction that produced the dyad takes place ; and simultaneously, the (productive) action in the other atom is supposed to set in ; then comes (1) the destruction of the dyad simultaneously with the disjunction due to the action in the other atom. (2) Then there is the destruction of the dark colour together with the destruction of the previous conjunction by the above disjunction. (3) Then there is the origination of the red colour, and the conjunction productive of the new dyad. (4) Then comes the origination of the dyad. (5) Finally, the red colour is originated in the dyad.[49]

The process can be prolonged to the sixth moment if the action in the other atom is supposed to synchronize at a later stage with the destruction of the dyad, and not with the destruction of the conjunction which produces the dyad, as in

[48] KV., p. 190; KR., pp. 62-63; SM., p. 418.
[49] KR., p. 65; SM., p. 420.

the previous process. It can be extended by another moment if the action of the other atom is supposed to take place yet a moment later, that is to say, simultaneously with the destruction of the dark colour. The process can be still further prolonged by supposing the action in the other atom to take place later by still another moment, that is to say, simultaneously with the production of the red colour.[50]

These different methods of calculation have rather a technical than a philosophical interest. But the Vaiśeṣika has taken particular delight in these speculations, and every student of Vaiśeṣika philosophy is expected to be thoroughly at home with these different processes of calculation. An adage is current among the followers of the school, recounting a few knotty problems, and the process of change of qualities due to the action of heat (as also the necessary disintegration and reintegration of dyads),—briefly called *pākajaprakriyā*, is one of them.[51] We have, however, taken pains to demonstrate the logical propriety guiding the steps in the chain of calculations, and in this we have only loyally followed the guidance of the later exponents of the system. The present discussion may be looked upon as an attempt on our part to revive some scholastic speculations which may, perhaps, have outlived their usefulness. But our defence is that every speculative attempt should be judged on the merit of its logical consistency alone.

4. The Action of Heat on Earthy Atoms

We conclude this chapter with a note on what the Vaiśeṣika thinks about the necessity and the specific nature of the action of heat upon earthy atoms for producing qualitative changes in them. Atoms of earth are homogeneous so far as their general qualitative character is concerned, since they all possess the original qualities of the earth-substance, *viz.*, colour, taste,

[50] KR., pp. 65-66; SM., pp. 420-421.

[51] *Dvitve ca pākajotpattau vibhāge ca vibhāgaje* |
yasya na skhalitā buddhis taṃ vai Vaiśeṣikaṃ viduḥ ||
Quoted in *Sarvadarśanasaṃgraha* (ed. Ānandāśrama Sanskrit Series, Poona), p. 88.

odour and touch. But there are different kinds of colour, and each colour is found to have a large variety of shades. Similarly, there are finely differentiated varieties of even odour, taste and touch. A ripe mango and a ripe banana are both sweet and soft and fragrant. But one misses in the mango the peculiar sweetness, softness and fragrance of the banana. The peculiar qualities of the two fruits, which are supposed to be gross earthy bodies, can only be accounted for by similar qualities in their ultimate constituents, the atoms. But how do the atoms themselves come to acquire these qualities? Certainly, not from their material causes, for the atoms are *ex hypothesi* uncaused entities. It is, therefore, proposed by the Vaiśeṣika that the atoms of earth take on varying qualities, *i.e.*, particular colours, tastes, etc., through their different kinds of contact with heat-particles. Thus some atoms of earth, when acted upon by heat in a particular way, come to be invested with a qualitative peculiarity (*i.e.*, a peculiar colour, taste, etc.); and when these atoms combine in a particular manner, they form a definite kind of body, say a mango, with a specific qualitative character. It is not possible for the same set of atoms (with their distinctive peculiarity in respect of qualities) to constitute themselves into another kind of body, say a banana, even through a different kind of grouping or collocation. The constituents of a banana are a different group of atoms, in which a different set of physical qualities has been produced by the action of heat. It is the degree or intensity of heat as well as the specific nature of its contact with an atom that determines what particular qualities will be produced in the atom,—whether it will be the constituent of a mango or a banana or any other thing. It thus appears that atoms of earth, though lacking in the specific class-marks (*avāntarajāti*) of the gross bodies (which, as we know, ultimately reside in triads) and though possessing the generic properties of the earth-substance, are differentiated into various kinds on the basis of their specific physical characters, *i.e.*, particular colours, tastes, etc., which are produced in them by the action of heat (*pākajaviśeṣa*).[52]

[52] NKu., pt. I, p. 134.

CHAPTER VI

THE PROPERTIES OF MATTER

1. The Qualities of Matter as Finite Substance

The four material substances possess limited magnitude; they are, therefore, capable of motion. Motion is defined as the unconditional cause of conjunction and disjunction.[1] The disjunction of an object from one point of space and its conjunction with another, *i.e.*, its change of position in space, is possible only through motion. Motion can, therefore, belong only to finite substances. For what is omnipresent is always in conjunction with all points of space and can never get away from any of them.

Motion being instantaneous (*kṣaṇika*) and unproductive of another motion (*sajātīyānārambhaka*),[2] according to the Vaiśeṣika, every material thing moving in a particular direction must by necessary implication possess the quality of impulse (*vega*),[3] which makes continuity of its motion in the same direction possible. The quality of impulse is produced in a moving body by its first unit of motion, and so long as the body remains in possession of this quality, *i.e.*, so long as its impulse is not neutralized by some other force, it will continue to move in the direction of its original motion.[4] Impulse may, therefore, be explained as a persistent tendency to motion in a definite direction. The Vaiśeṣika considers impulse to be a type of what he calls the quality of *saṃskāra*. The peculiarity of *saṃskāra* (in all its forms), we are told, is that it is

[1] VS., I. i. 17.

[2] PPBh., p. 290.

[3] The word impulse has not been used here in its technical sense. Impulse as understood by a modern student of Dynamics is not the same thing as *vega*, though there is some superficial similarity between the two concepts.

[4] PPBh., p. 266.

capable of producing an effect similar to the cause by which it is itself produced. Impulse is supposed to result from one motion and lead to another just in the same manner as mental impression, to which the term *saṃskāra* is ordinarily applied, is the product of a previous experience and the cause of a subsequent one (*viz.*, recognition or recollection).[5]

Priority (*paratva*) and posteriority (*aparatva*), both spatial and temporal, are the other possible qualities of the four material substances. Of two co-existent bodies, one is spatially prior or posterior according as it is remoter or nearer than the other from a fixed point of reference. Similarly, of two things one is temporally prior or posterior according as it has passed through a larger or a smaller number of time-units (of uniform length) than the other. It appears, therefore, that material things not only occupy distinct positions in space and time, but may also under certain circumstances bear to one another definite positional and chronological relations and thus develop the relational qualities of priority and posteriority.[6]

The qualities of impulse, priority and posteriority can, for obvious reasons, abide only in finite (*mūrta*) substances. The material substances, therefore, share these qualities with at least one non-material substance, *viz.*, mind, which, according to the Nyāya-Vaiśeṣika, is of atomic (hence, finite) magnitude.[7] An atom or mind, however, being an eternal substance, cannot have priority or posteriority predicated of it in a temporal sense.

2. The Qualities of Matter as Substance

The *material*, as we have seen, is essentially *substantial* and should, therefore, be supposed to possess all the qualities which belong to substance as such. The Vaiśeṣika recognizes five such qualities, *viz.*, number (*saṅkhyā*), magnitude (*pari-*

[5] KR., p. 131.

[6] PPBh., p. 21. For further details on these qualities *vide* Chapters IX and X.

[7] That the mind is of atomic magnitude is deduced mainly from the fact that it is found to operate upon and take note of only one object at a time. *Vide* NBh., III. ii. 59.

māṇa), separateness (*pṛthaktva*), conjunction (*saṃyoga*) and disjunction (*vibhāga*).[8] We give here only a brief and general account of these qualities.

Number is defined as the special objective condition of counting, *i.e.*, of the use of the numerical terms one, two, three, etc.[9] Each individual substance is a single unit, *i.e.*, one ; its number, *viz.*, oneness (*ekatva*), is therefore a quality intrinsic to and inseparable from it. According to a view attributed to Bhūṣaṇa, the unity or oneness of a thing consists in its self-identity, *i.e.*, in its non-difference from its own self (*svarūpābheda*). Udayana rejects this view on the ground that it makes oneness the individual characteristic of only one particular thing. If, for instance, a particular table's oneness were nothing but its identity with its own self, this oneness would not be predicable of any other thing, say a chair or a tree, since the only thing that can be said to be identical with a particular table's own self is the particular table itself. The fact, however, is that oneness is always understood as a numerical quality common to all individually separate substances and distinct from each of them.[10] Oneness is eternal in an eternal substance like *ākāśa* or time. It is transient in a composite ; a brick, for instance, ceases to be one as soon as it is broken to pieces.[11]

All integral numbers higher than one are invariably transient, since they are supposed to be derived from what is technically called 'enumerative cognition' (*apekṣābuddhi*).[12]

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[8] PPBh., p. 95.

[9] *Ibid.*, p. 111.

[10] KV., pp. 102-103.

[11] PPBh., p. 111.

[12] *Apekṣābuddhi* is defined (BhP., verse 199) as the cognition that refers simultaneously to many units of oneness present in many individual substances. Of the English equivalents suggested for this difficult term, *viz.*, 'relative understanding' (N. L. Sinha) 'relating cognition' (A. B. Keith), 'notion of addition' (Swami Madhavananda), and 'enumerative cognition' (K. S. Shastri), the last one appears to be the most suitable in the present context. It is self-explanatory and, as we shall see, conveys some idea of the real function of *apekṣābuddhi*.

Let us take, for instance, the case of duality (*dvitva*). When two like or unlike substances are presented to us, they are not immediately felt as *two* things. As our visual sense comes in contact with these objects, there arises in us a complex cognition which apprehends each one of them separately from the other and conveys the notion that each is a distinct single unit, as is evident from our use of the expressions, 'This is one' and 'That is one'. The separate units of oneness which are present in those substances, being objects of the same cognition, are necessarily brought into a relation of togetherness by it. This results in the emergence of duality as a quality inhering in the two substances collectively ;[13] then follows the knowledge of duality, firstly, as a vague and general idea, and then, as a determinate perception ; and it is only after this that we come to have the impression that there are *two* things before us.[14] Other numbers also are obtained in the same way through the instrumentality of the relevant enumerative cognitions.

The enumerative cognition thus appears to have a twofold function, *viz.*, to take note of the isolated units of oneness, and to relate these units or 'add them up' in order to produce duality, triplicity, etc. The two operations, one perceptual and the other arithmetical, are, however, synchronous and inseparable ; in fact, they are supposed to constitute a single psychosis, though of a complex nature. The unities are thus differentiated and related at the same time. It would be wrong to say that they are unified or synthesized into whole numbers, for their status as discrete units remains completely unaffected even by the emergence of these numbers. When, for instance, it is said that duality arises as subsisting in two perceived things, what is meant is that each of them comes to be invested with

[13] This peculiar relation on a collective basis is technically called *paryāpti* (*pari* : comprehensive+*āpti* : relation). It is assumed on the ground that, if duality were related to each of the two substances individually, there would be nothing to rule out the absurdity of each of them being perceived as *two* things. *Vide* SM., pp. 423-24.

[14] PPBh., p. 111; NK., p. 115; SM., pp. 424-425.

the new character of being second to another without forfeiting its own intrinsic numerical unity.

The Mīmāṃsaka, however, holds a different view regarding the function of enumerative cognition. According to him, numbers higher than one are *revealed* or made known by enumerative cognition, and not created by it. This cognition can, therefore, operate only when the numbers are already in existence as qualifying elements in two or more substances. There are, on this view, as many enumerative cognitions as there are numbers to be revealed ; and, if two or more of these numbers are not perceived simultaneously, it is because the relevant revealing cognitions cannot arise at the same time.

The Vaiśeṣika rejects this view mainly on the ground that it assumes different revealing conditions (*vyañjaka*) for objects that are of the same kind. The assumption is obviously in conflict with our common experience that it is the same light that reveals the various colours. Numbers from duality onwards, like the different colours, are found to subsist in the same kind of things (*viz.*, substances), to be perceivable by the same sense-organ (*viz.*, the visual organ) and to partake of the same generic character (*viz.*, numberhood). It is, therefore, logically inadmissible that each of these numbers should be revealable only by a special enumerative cognition.[15] Again, the particular enumerative cognition which is supposed to reveal duality is, on the Vaiśeṣika view, *prior* to the knowledge of duality not only logically but also chronologically. This enumerative cognition, being a transient psychical phenomenon (lasting only for three moments, according to the Vaiśeṣika), is believed to go out of existence just when duality comes to be the content of a determinate perception. But this is inconsistent with the position that the enumerative cognition in question is revelatory of duality. For the revealing condition and the revelation of an object by it are required to be synchronous facts. Light is never without the illumination caused by it. If, therefore, duality or any other number is perceiv-

[15] KR., pp. 68; Cit., p. 302.

able only after an enumerative cognition has arisen and not before that, it is because this cognition has a direct bearing upon the actual production of the number. This also explains why the knowledge of duality (or of a higher number) is invariably found to be a piece of personal mental history of a particular individual,—the number created by his own enumerative cognition being perceivable by himself alone.[16]

Numbers from duality onwards, though admittedly subjective in origin, are not, on that account, to be viewed as having no objective validity. These numbers, it is true, are brought into existence by an intellectual necessity. But so long as they exist, they exist as objective facts, *i.e.*, as parts of extramental reality, for purely notional entities are incapable of being related by inherence to things that are objectively real. Besides, the enumerative cognitions which produce duality, etc., are not the cognitions that apprehend them. In other words, the existence of these numbers does not consist in their being apprehended. They exist prior to and independently of the perceptual knowledge that refers to them. They have, therefore, the same ontological status, on the Vaiśeṣika view, as oneness, or as the substances in which they inhere.

In the Vaiśeṣika works, we find interesting discussions on the nature and status of indefinite plurality (*bahutva*). Ordinarily, plurality is held to be a general name for all numbers higher than two. Each of these numbers, as we have already seen, is produced by a determinate and constant (*niyata*) enumerative cognition, *i.e.*, a cognition which takes note of a definite number of units of oneness. But in the case of soldiers in an army, or trees in a forest, or deer in a herd, any such determinate enumerative cognition is obviously impossible; and thus in the absence of the necessary condition for the production of any definite number, what is produced is an indefinite number, a mere plurality. This is the view of Śrīdhara. According to him, indefinite plurality is a separate number, which is different in kind from such numbers as are

[16] NK., p. 116; KV., p. 200; SM., p. 426.

conveyed by the terms three, four, hundred, thousand, etc. In fact, these numbers really represent the quality which makes counting possible, whereas indefinite plurality cannot be counted and is perceived even by one who does not know the art of counting. But Śrīdhara's view does not find favour with Udayana. He points out that plurality is never indefinite and has no existence apart from the definite numbers. In the case of a particular army or herd, for instance, the number of soldiers or deer is certainly definite, say, a hundred or a thousand or more. But this number is not apprehended because of the absence of the conditions of such apprehension. If plurality were indefinite or if it were a distinct numerical type, it would not admit of variations or of the relation of greater and less. And in the absence of varying orders of plurality comparable to one another, it would be impossible to provide a logical basis for the explanation of our common experience of one particular army or herd being more numerous than another.[17]

Śaṅkara Miśra, however, is emphatic in his assertion that plurality should be recognized as a distinct number. According to him, plurality generally co-exists with any number above two in a common substratum. The five fingers of one's right hand, for instance, possess not only 'fiveness' but also plurality ; they are judged as 'so many' and 'many' at the same time. When, however, the number of things in a group cannot be fixed at a specific figure, as in the instances cited above, the only number that these things can possess is plurality. And, since this plurality is not associated with a definite number, it remains indefinite, but even then it does not forfeit its numerical character.[18]

Magnitude is the quality by virtue of which a substance is said to be capable of being measured quantitatively. When we say of a thing that it is so large or so small, or so long or so short, we mean that it possesses a particular magnitude.[19]

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[17] VUp., VII. ii. 8; SM., pp. 428-29.

[18] VUp., VII. ii. 8.

[19] PPBh., p. 131.

Magnitude is supposed to be of two orders: (*i*) the infinitesimal or minute (*aṇu*), and (*ii*) the non-infinitesimal or large (*mahat*). The non-infinitesimal magnitude is either finite or infinite, *i.e.*, infinitely large (*paramamahat*). The latter is, in reality, a unique kind of largeness—a limitless extension;[20] it is eternal and supersensible because it is possessed only by eternal and supersensible substances like *ākāśa*, time, etc. The finite non-infinitesimal magnitude is the only gross and sensible magnitude. It is also called medium magnitude (*madhyamaparimāṇa*) because it stands between the infinite and the infinitesimal. A magnitude of this kind alone (in association with colour) can impart perceptibility to the substance that possesses it.[21] It is the only type of magnitude that exhibits a capacity for the relations of greater and less, and divisibility. All gross bodies from a triad onwards are characterized by this magnitude. It is transient because gross bodies being composites are necessarily transient. The gross magnitude of these bodies is explained as due to the plurality (*bahutva*) or gross magnitude (*mahattva*) or incompact combination (*pracaya*) of the parts that compose them.[22] The infinitesimal magnitude implies the total absence of grossness or extension, though it is not the null-point. It is the minimal positive magnitude and, therefore, does not admit of variations in increase or decrease, although it may be either eternal or transient. It belongs only to infra-sensible substances like minds, atoms and dyads; it is eternal[23] in the case of minds and atoms, and transient in the case of dyads.[24]

The Vaiśeṣika recognizes two other kinds of magnitude,

[20] This magnitude is regarded by Vācaspati, Udayana and others as a type by itself.

[21] NK., p. 133.

[22] The conditions of the production of gross magnitude have been discussed in Chapter IV.

[23] The eternal infinitesimal magnitude is technically called *pārimāṇḍalya.*

[24] The magnitude of the dyad is held to be due to the causal influence of number, *i.e.*, the *duality* of the constitutive atoms.

viz., 'longness' (*dīrghatva*) and shortness (*hraśvatva*). 'Longness' is believed to be invariably associated with medium magnitude, *i.e.*, limited largeness, but is not identical with it. For we often speak of a large thing that is also long and thus distinguish the two kinds of magnitude possessed by it.[25] Appaya Dīkṣita suggests that the 'longness' of a body (like a triad) has reference to a linear (*tiryac*) arrangement of its constituents and evidently implies its stretch in one dimension. But a body is said to be large or gross when there is a three-dimensional (*paritaḥ*) distribution of its component particles.[26] It, therefore, follows that only a body which is large in the technical sense can have a real and definite length. Similarly, shortness is supposed to subsist in a thing characterized by transient infinitesimal magnitude, *i.e.*, in a dyad, and the difference between these two kinds of magnitude present in a dyad is, for obvious reasons, imperceptible.[27] The 'longness' or shortness of a thing is not intelligible without reference to an end or terminal part. The ubiquitous substances cannot, therefore, be described as long, or atoms as short, for they are indivisible and impartite in character. This perfectly rational view held by some Vaiśeṣika writers is disputed by others, who are of opinion that all infinitely large things are also infinitely long (*paramadīrgha*) and that atoms possess a kind of shortness which is eternal and ultimate (*paramahrasvatva*).[28]

Separateness (*pṛthaktva*) is the qualitative ground of our notion of one substance being different from others. That A is felt as different from or other than B, is due to the presence of this quality in both A and B. It is not, on the Vaiśeṣika view, a case of mutual negation of their identity (*anyonyābhāva*), for experience or linguistic convention does not warrant the interpretation of differences in terms of negation. To say that A is other than B, is not logically the same thing as to

[25] PPBh., pp. 131-132.

[26] VKTP., II. ii. 11, p. 506.

[27] PPBh., p. 132.

[28] NK., p. 134.

say that A is not B. A's difference from B is a positive fact, expressed invariably by an affirmative proposition and explainable only on the basis of a positive quality.[29] Separateness should, however, be distinguished from what we ordinarily understand by the term individuality. A thing's individuality (*svarūpa*) is its very essence ; in fact, it is the thing itself. A thing's separateness, on the contrary, is its individualizing quality, its quality of being a distinct individual. The notion of individuality is thus self-contained and self-sufficient ; it is arrived at directly and spontaneously. But separateness is intelligible only in relation to a term of reference (*avadhi*) ; it is expressed in the form, 'This is other than anything else', and not in the form, 'This is just this'.[30]

Qualitative or functional divergence (*vaidharmya*), or the possession of any distinguishing mark (*vaiśiṣṭya*) cannot be regarded as the criterion of separateness. Separateness is always *of one* substance *from another* and is thus determined solely by difference of identity. The separateness of a particular mango, for instance, lies in its difference from other substances including other mangoes. But a green mango is never understood as *separate* from what it becomes when it ripens, for although there is change in its qualities, there is no change in identity. Similarly, when an armed soldier is judged to have *separateness*, it is not because he is armed and others are unarmed, for the soldier does not come to be separate from himself, or cease to be separate from others even when he lays down his arms.[31]

Conjunction (*saṃyoga*) is the joining together of two substances which were previously lying apart.[32] In other words, two substances, capable of existing independently of each other, are said to be in conjunction when they come to be so extremely contiguous to each other that there cannot be any

[29] *Ibid.*, p. 138.
[30] VUp., VII. ii. 2.
[31] *Ibid.*
[32] PPBh., p. 139.

intervening space between them.[33] Conjunction is thus a separable relation and should be distinguished from the relation of inherence (*samavāya*) which binds the relata inseparably together. A whole, for instance, is inconceivable without its parts in which it inheres, but it may or may not be in conjunction with another whole. Though obviously a relation, conjunction is treated in the Nyāya-Vaiśeṣika system as a quality, and, like other qualities, it is supposed to subsist in the (conjoined) substances through the relation of inherence.

The conjunction or contact of two substances may be due to the action of either one or both of them (*ekatarakarmaja* or *ubhayakarmaja*). The contact of a bird with a hill or with *ākāśa* is due solely to the action of the bird, for the hill as well as *ākāśa* is an immobile substance. When, again, a hound overtakes a running hare and falls upon it, the contact of the two is due to the action of the hound alone, for the hare's motion is not *towards* the hound and has therefore no bearing upon the production of the contact. The contact or collision of two wrestlers advancing towards each other is, however, caused by the action of both of them. Conjunction is sometimes found to be produced by another conjunction (*saṃyogaja*). The contact of the branch of a tree with a wall produces the conjunction of the tree with the wall. The contact, again, of vermilion powder with a lump of clay is responsible for the contact of the same vermilion powder with a jar immediately after it is produced out of the same lump of clay.[34] The conjunction of two substances is destroyed either by their disjunction (*vibhāga*) or by the destruction of either of them. A hand's contact with a wall comes to an end if the hand is withdrawn and thus *disjoined* from the wall, or if the wall crumbles to pieces by a sudden shock of earthquake.[35]

Conjunction is held to be a non-pervasive (*avyāpyavṛtti*) quality. While the white colour or the sweet taste of a lump of sugar is present in every particle of it, the quality of con-

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[33] NK., p. 141.

[34] *Ibid.*, p. 146; VUp., VII. ii. 9.

[35] PPBh., p. 141.

junction subsisting in an object does not pervade all the parts of that object. The presence of conjunction in a substratum is, therefore, co-existent with its absence in the same substratum. There is no contradiction in such a supposition. When, for instance, a man is seated on the top of a tree, there is no denying the fact that he is perceived to be in conjunction with the tree itself, although the conjunction does not extend over the entire body of the tree. The conjunction is apparently present at the top and absent at the base, but neither the top nor the base is perceptually differentiated from the tree, which extends from the top to the base. The phenomenon has been sought to be explained by some in a different manner. It is suggested that the conjunction here is not with the tree as a whole, but only with the top part of it, and so the absence of the conjunction at the base does not argue that it is non-pervasive. The suggestion, simple as it is, does not meet the needs of the situation. If the conjunction subsisted not in a whole but only in a particular part of it, then, since the part itself is a diminutive whole having parts of its own, the conjunction would ultimately come to subsist in the atom which is the only partless thing. Every case of conjunction would thus have an atom as one of its relata, and, since the atom is infra-sensible, no conjunction could ever be amenable to perception. This, however, is manifestly absurd.[36]

In opposition to the Mīmāṃsaka, the Vaiśeṣika maintains that every conjunction is necessarily an event in time. In other words, there cannot be any conjunction, according to the Vaiśeṣika, which is eternal or uncaused (*aja*). Even the conjunction of an atom with *ākāśa* is not eternal, although both of them are eternal substances, and although *ākāśa* being ubiquitous is never out of conjunction with a finite thing. The fact is that the atom is conjoined with the ubiquitous *ākāśa* in respect of its different parts at different times, and each such conjunction is brought about by a particular motion on the part of the atom. It may be contended that the con-

[36] NK., pp. 102-103.

junction of two ubiquitous substances, say *ākāśa* and time, should be eternal, for, these substances being immobile by their very nature, their conjunction cannot be accounted for by motion pertaining to either or both of them. But the Vaiśeṣika denies even the very possibility of such conjunction. The conjunction of two substances presupposes that they should be capable of separate existence. Two things are said to be existing separately when at least one of them can freely get away from the other, or when each of them has its constituents different from those of the other. But neither of these two conditions of separate existence can be present in the case of ubiquitous substances which are immobile and incomposite.[37]

The Vaiśeṣika recognizes two special kinds of physical conjunction, *viz.*, pressure (*nodana*) and impact (*abhighāta*), which are supposed to be capable of producing motion in a body. Pressure is that kind of contact of one body with another which operates silently and produces such motion as does not bring about disjunction between the bodies in contact. Impact or violent striking, on the other hand, is a sound-producing contact causing such motion as leads to the disjunction of the conjoined bodies (*i.e.*, the impacting and the impacted bodies). The contact of soft mud with a heavy stone placed upon it or the contact of flowing water with reeds standing in its way is an instance of pressure. The contact of a ball with the ground before it rebounds is a case of impact. Thus, while pressure is a contact that persists, impact is an instantaneous contact which is immediately followed by disjunction.[38]

Disjunction (*vibhāga*) is defined as the separation of two previously conjoined substances (*prāptipūrvikā 'prāptiḥ*).[39] When, for instance, a hand in contact with a wall is withdrawn from the wall, we have disjunction between the hand and the wall. Disjunction, in the orthodox Vaiśeṣika view, is not the mere negation of conjunction. For, although there

[37] *Ibid.*, pp. 149-150.

[38] VUp., V. ii. 1.

[39] PPBh., *p.* 151

is admittedly no conjunction between such substances as a whole and its part, or as the sun and the moon, we do not have the notion that these substances are disunited (*vibhakta*), or that there is disjunction between them. It is, of course, a common experience that whenever there is disjunction there is also loss of conjunction, but that does not imply that disjunction and loss of conjunction are identical. Disjunction is always understood as a two-termed relational quality ; that is, it is possible only between two co-present substances. But loss of conjunction takes place even when one of the conjoined substances is destroyed.

According to the Vaiśeṣika, the acknowledgment of disjunction as a distinct quality is entailed by the necessity of providing an explanation for such loss of conjunction as is not brought about by the destruction of the terms. The loss of conjunction in this case cannot be due to any separative *action* on the part of either or both of the substances, for action or motion is never found to be capable of destroying a quality. In fact, so long as a substance exists, its quality can only be destroyed by a contrary quality arising in the same substance. The loss of conjunction, therefore, if it is not due to the destruction of any of the conjoined substances, must be attributed to a cause which cannot be anything other than a quality, and this quality is disjunction.[40]

Disjunction is primarily caused by action in one or both the terms. The disjunction of falling leaves from a tree and that of two rams moving away from each other after a close fight are respectively the examples of the two types of disjunction. There is a third type of disjunction, which is not caused by action, but by a previous disjunction. We propose to call it derivative disjunction (*vibhāgajavibhāga*). It is conceived to be of two kinds according as it results from the disjunction of causal factors alone (*kāraṇamātravibhāgajanya*), or from the disjunction of a cause from what is not a cause (*kāraṇākāraṇavibhāgajanya*). The disjunction of the two

[40] NK., pp. 154-55.

halves of a pot is caused by action in either (or both) of them. This leads ultimately to the destruction of the pot. Now the disjunction of the component halves of the pot leads to the disjunction of the same from the relevant point (or points) of space. But here a question arises: Why does not the action in one or both the halves, which leads to the disjunction of the two halves, also effect their disjunction from the relevant points of space automatically at one and the same time? What is the reason for supposing that the second disjunction takes place at a subsequent moment, The Vaiśeṣika observes that we must draw a line of distinction between the disjunction of causal factors, which is destructive of such conjunction (of causal factors) as is productive of the whole, and the disjunction which is destructive of conjunction with a point of space, *i.e.*, a conjunction having no bearing upon the production of the whole. The necessity of this distinction can be brought home by an example. The disjunction of the petals of a blooming lotus (at the tip) does not lead to the destruction of the lotus, which, however, is caused by such disjunction of the petals from each other as is destructive of their conjunction (at the stem) that produced the lotus. So we see that the disjunction which destroys the conjunction of the causal factors, leading to the destruction of the whole, is, by its very nature, different from the disjunction between the causal and the non-causal factors, which does not destroy the productive conjunction of the causal factors. It naturally follows that the two kinds of disjunction, one destructive of constitutive conjunction, and another, of non-constitutive conjunction, cannot take place at one and the same time; that is to say, they are mutually exclusive.

We have the second variety of derivative disjunction when the disjunction of the component part of a whole from another whole results in disjunction between the two wholes. The disjunction of a hand from a tree leads to the disjunction of the whole body from that tree. The first disjunction is caused by the movement of the hand, and the second disjunction is caused not by any movement but by a previous disjunction.

The whole body cannot be supposed to move with the movement of the hand, for, though the movement of a whole necessarily involves the movement of its parts, the converse is not true.[41]

3. Some Physical Qualities of Matter

We have so far discussed the qualities that are believed to characterize both material and non-material substances. We now come to what may be regarded as purely physical qualities, *viz.*, weight (*gurutva*),[42] fluidity (*dravatva*), viscosity (*sneha*) and elasticity (*sthitisthāpakatva*). These qualities are present only in matter, although none of them, not even weight, is, in the Vaiśeṣika view, the common property of all types of material substances.

Weight is the necessary condition of the initial movement of a falling body, the continuity in fall being explicable on the hypothesis of impulse (*vega*). It is possessed by two substances, earth and water. Weight is a supersensible quality. It is not, as some would suggest, a quality perceivable by touch. For, were it so, any one would perceive the weight of a piece of stone by simply touching it just as he feels its admittedly tactual quality of coolness or hardness. When, however, he tries to hold the same piece of stone in his hand, he feels his hand dropping down, wherefrom he infers the presence of the quality of weight in the stone.[43]

Fluidity is the condition of the first downward flow (*syandana*) of a substance like water, the continuity in flow being due to impulse.[44] Weight, which is invariably found to be present in a fluid substance, is believed to be a contributory cause (*nimittakāraṇa*) of the flowing motion.[45] Fluidity is

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[41] PPBh., pp. 151-52; NK., pp. 155-158.

[42] Lightness (*laghutva*) is supposed to be the diminution of weight (*gurutvāpakarṣa*) and not a distinct quality. When, therefore, we speak of heavy bodies and light bodies, the difference is only one of degree. NLV., p. 638.

[43] PPBh., p. 263; NK., p. 264.

[44] *Ibid.*, pp. 264-265.

[45] VUp., V. ii. 4.

either natural (*sāṃsiddhika*) or contingent (*naimittika*). It is natural in water. Contingent fluidity, which is the result of the action of heat, is present in substances like clarified butter and molten gold.[46]

Viscosity is the quality by virtue of which particles of powder are agglutinated and held together in the form of a lump. This quality is believed to be possessed by water alone.[47] The lumping (*piṇḍībhāva*) as opposed to loose massing of powder is, however, held to be the direct result of what is called the property of agglutination (*saṃgraha*), which holds the particles together and prevents them from dispersing. Agglutination, according to Vātsyāyana, is a distinct quality (*guṇānatara*) produced by fluidity and viscosity operating together. The particles of earth or flour, for instance, come to possess this quality when they have a particular kind of contact with water, which is the only substance that is both fluid and viscous.[48] Śrīdhara, on the other hand, holds the view that agglutination is nothing more than a peculiar form of conjunction (*saṃyogaviśeṣa*)—a sort of sticking together, which helps loose particles to get lumped up.[49] Both Praśastapāda and Śrīdhara seem to think that viscosity alone is sufficient to explain agglutination.[50] Viscosity, according to them, is also the cause of glossiness (*mṛjā*) and softness (*mṛdutva*).[51] Viscosity as well as fluidity in a substance is supposed to be perceivable by both sight and touch.[52]

Elasticity is defined as the quality which causes the first movement of a body returning to its original condition after having deviated from that condition under some external

[46] PPBh., p. 25; NK., p. 26.

[47] NK., p. 266.

[48] NBh., II. i. 36.

[49] NK., p. 266.

[50] But later Vaiśeṣika writers like Viśvanātha and Śaṅkara Miśra insist upon fluidity also as a necessary condition of agglutination. (*Vide* BhP., verse 156; VUp., II. i. 2.)

[51] PPBh., p. 266; NK., p. 266.

[52] PPBh., p. 96.

influence, say a push or a pull. It is due to the possession of this quality that the branch of a tree, forcibly dragged down and then released, tends to swing back to its original position. It, however, stops at that position not immediately but only after a series of motions, in opposite directions and with diminishing velocity. Throughout this process, elasticity operates as a persistent force which repeatedly pushes the body back towards the original position till it actually stops there. Elasticity is generally held to be a quality of earth, for it can belong only to a dense and compact substance.[53]

4. The Specific Qualities

We shall now analyse what are called the specific qualities (*viśeṣaguṇa*) and separately assess the individual peculiarities of the four material substances. These specific qualities are, as already mentioned, odour, taste, colour and touch, and they can be perceived by the four sensory organs, the olfactory, the gustatory, the visual and the tactual respectively.[54] Of these, air possesses touch alone. Touch and colour are the two qualities of fire. Water has all the qualities except odour, and earth possesses all four qualities.

Earth is a substance characterized by the invariable presence of odour which may be either pleasant (*surabhi*) or unpleasant (*asurabhi*).[55] Odour is not present in anything other than earth. Odour that is occasionally felt in water and and air is due to the presence of particles of earth in them.[56] If malodorous water is mechanically purified of its earthy contents, it is found to be freed of odour. Stone, which is a form of earth, is apparently odourless. The fact, however, is

[53] NK., p. 272; BhP., verse 150.

[54] Sound, though a specific quality perceivable by the auditory organ, is not mentioned here because it belongs exclusively to a non-material substance, *viz.*, *ākāśa*.

[55] What is called unpleasant odour is to be understood not as a mere negation of pleasant odour, but as a distinct and positive kind of odour differing in nature from the former.

[56] NK., p. 29.

that there is odour in stone, but it is too faint to be perceived. If stone is incinerated, the ashes have a distinct smell. The ashes of stone are constituted of the same earthy atoms as stone itself. If, therefore, there were no odour in stone, there could be no odour in its ashes.[57] In earth there are seven kinds of colour, *viz.*, white, blue (or black), yellow, green, grey, red and variegated (*citra*).[58] In water and fire there is only one colour and that is white. There are six kinds of taste, *viz.*, sweet, sour, saline, bitter, pungent (*kaṭu*) and astringent (*kaṣāya*), and all of them are present in earth.[59] Touch stands for the quality of temperature;[60] it is of three kinds,—hot (*uṣṇa*), cold *śīta*) and neither-hot-nor-cold (*anuṣṇāśīta*), *i.e.*, temperate. The natural touch of earth is temperate.[61] All these qualities are transitory in the case of earth (in the atomic as well as in the composite condition), for the action of heat causes changes in them.

An earthy substance (in its gross form) is found to possess certain other characteristics which are absent in water, fire or air, *viz.*, (*i*) rigidity or hardness due to the component particles being closely and firmly packed together (*nibiḍasaṃyoga*),[62] giving the earthy body some sort of stability (*sthairya*), *i.e.*, enabling it to keep its shape and resist being broken; (*ii*) capacity for opposing the movement of bodies possessing weight (*viṣṭambhakatva*); and (*iii*) capacity for assuming

[57] SM., pp. 140-145.

[58] The reasons for giving a distinct status to *citrarūpa* will be discussed in Chapter XI.

[59] Udayana points out that white colour and sweet taste cannot be the specific qualities of earth. These qualities as present in earth are not natural, but, like its touch, are induced by the action of heat. *Vide* KV., p. 173.

[60] Touch is sometimes taken to imply tangibility. Tangibility is that quality of a material object in virtue of which it takes up room to the exclusion of another material object. *Vide* NV., IV. ii. 25, p. 522.

[61] PPBh., p. 27.

[62] Hardness or softness, according to Viśvanātha, is a natural tactual property of the earthy substance and does not stand for any peculiarity in the combination of its component particles. SM., p. 413.

countless types of forms (through various atomic arrangements), each type exhibiting a specific class-character (*avāntarajāti*), *i.e.*, the character of a special kind of earthy body, such as a jar or a cloth or a brick.[63]

The natural colour of water is non-luminous white (*abhāsvaraśukla*). It is not correct to say that water in its natural condition is absolutely colourless, for that would make it imperceptible. The non-luminous whiteness of water, which possibly refers to its intrinsic transparency, undergoes no change by the process of heating.[64] The seeming blueness of the sea is imparted to it by the earth on which the sea rests. If the water of the sea is thrown skywards, its essential whiteness is revealed.[65] The natural taste of water is sweet. The sourness of lemon-juice and the saltiness of brine are due to the admixture of earthy matter. The natural sweetness of water is not ordinarily perceived, because the taste is suppressed by the earthy substances which are present in the mouth and which get dissolved in water when it is taken in. Water, however, tastes quite sweet if it is taken after chewing the astringent myrobalan fruit which is believed to have the efficacy of cleansing and stimulating the tongue and enabling it to bring out the essential sweetness of water.[66] The modern view that water is remarkable for having no taste is not accepted by the Vaiśeṣika. The natural touch of water is cold. Other substances (bodies) are cold only in proportion to the extent to which water enters into their composition. Fire imparts warmth to water, but that is merely a temporary lapse of its natural coldness.[67] In warm water, the Vaiśeṣika contemplates the presence of particles of fire, probably in the same way as we ordinarily recognize the presence of watery vapour in air. Viscosity is one of the natural qualities of water and is not present in any other substance. The viscosity of oils is of a

[63] KVt, p. 53, and *Prakāśa* thereon.
[64] KV., p. 67.
[65] SM., p. 167.
[66] KV., pp. 67-68; SM., p. 167.
[67] KV., p. 68.

high quality and therefore contributes to their combustibility.[68] The viscosity that is seen in admittedly non-aqueous substances like fats and clarified butter is due to the presence of atoms of water in them.[69] Fluidity is also a natural quality of water. The fluidity of liquefied butter which is held to be an earthy substance,[70] or of molten gold which is believed to be a form of fire[71], is contingent, *i.e.*, due to the application of heat. Ice, though it is solid, cannot be called an earthy substance. The solidity of ice is contingent. When ice melts on coming in contact with heat, it is perceived to be water. The destruction of an effect means its reversion to its causal condition. If ice melts into water, water must be held to be the cause, and ice the effect.[72] The solidity of ice, according to the Vaiśeṣika, is due to the fact that it is composed of such atoms of water as being acted upon by a subtle, supernatural (*divya*) heat undergo a sort of cohesive combination (*saṅghāta*) and thus have their natural fluidity arrested.[73]

The substance which has colour but no taste is called fire (*tejas*).[74] Earth as well as water possesses both colour and taste. In air there is neither colour nor taste. So these three differ

[68] SM., p. 171.

[69] *Ibid.*, p. 1700

[70] Liquefied butter is held to be an earthy substance because it is normally solid and its liquidity is produced by artificial means.

[71] The Nyāya-Vaiśeṣika theory that gold is a form of fire or light has been arrived at by a crude and curious logic. Gold apparently possesses three qualities of earth, *viz.*, yellow colour, weight and contingent fluidity. But the fluidity of gold is of a peculiar kind, since it cannot be destroyed even by the continued application of extreme heat. So gold is not an earthy substance. It is not a form of water, for fluidity is an original and not a contingent property of water. Nor is it a form of air, for it has yellow colour, while air is colourless. Gold, therefore, must be a form of the only remaining material substance, *viz.*, fire. There is, of course, an earthy portion in it, and that accounts for its yellow colour, weight and solidity. *Vide* TD., p. 8.

[72] SM., p. 172.

[73] PPBh., p. 265; VUp., V. ii. 8.

[74] LV., p. 4.

from fire. The colour of fire is glowing white (*bhāsvarsaśukla*), which means that it illuminates all visible things. The natural white colour of elemental fire is, however, missed in some fire-substances, such as the flames of an oven-fire or the rays of an emerald, but this is held to be due to their whiteness being overcome by the earthy colour.[75] The natural touch of fire is hot. It is an error to think that there is no hotness in the rays of the moon. The water supposed to be present in the moon suppresses the hotness of the moon's rays and makes them appear as cold. In like manner, the rays of a precious stone lose their warmth through contact with its earthy portion which is neither hot nor cold.[76] The fluidity of fire, like that of earth, is, as already mentioned, conditional; the fluidity of molten gold, for instance, results from the application of heat to gold.

The substance which has no colour but only touch is known as air.[77] Air becomes hot if it comes in contact with fire, and it gets cold through contact with snow. But the natural touch of air is neither hot nor cold (*anuṣṇāśīta*), and it does not undergo any permanent change through contact with fire (*pāka*).[78] This natural and distinctive touch is an object of direct perception, and it is as its locus that the existence of air is inferred. Air is not directly perceived because it is *ex hypothesi* devoid of colour. When leaves are heard to murmur and grass-tops are seen to wave apparently without the impact of anything that can be seen, the impact of a substance with the qualities of impulse (making continuous motion possible) and touch is inferred by us. That substance is air. Similarly, when fibres of cotton and blades of grass are seen suspended in the sky without being held there by any visible agency, we infer their contact with a thing possessing impulse and touch. That thing is air.[79]

[75] KV., p. 73; SM., p. 173.
[76] *Ibid.*
[77] LV., p. 6.
[78] PPBh., p. 44.
[79] *Ibid.*; also *vide* VUp., II. i. 9.

It may be pointed out here that some later Naiyāyikas, following the Prābhākara line of thought, have repudiated the view that air is an imperceptible substance. Though lacking in colour and therefore invisible, air, in their view, is at least tactually perceivable. The presence of manifested colour in a thing is not, according to them, the essential condition of its perceptibility. The tactual perception of a substance, for instance, depends solely upon its possession of the quality of manifested touch. To say that the existence of air is inferred from the perception of its quality of touch would, therefore, be as absurd as to suggest that the presence of a jar is ascertained by inference from the visual apprehension of its colour.[80] The orthodox Vaiśeṣika writers, however, tenaciously cling to the view that the presence of colour in a substance is a necessary condition of even the tactual perception of that substance, and so air must be imperceptible. If a substance is tactually perceivable, they argue, its qualities of number and magnitude must also be so. Even in darkness we feel by touch the presence of a jar as well as its number and magnitude. But these qualities in air are not perceivable by touch whether in light or in darkness. Air is, therefore, not amenable to tactual perception.[81]

Before we conclude our discussion on the individual peculiarities of the material substances, we feel it necessaary to refer to a theory, according to which each material substance is characterized by the possession of only one specific quality. The orthodox view, as already noted, is that earth has the specific quality of odour, but it has also the qualities of taste, colour and touch. The specific quality of water is taste, but colour and touch are also present in it. The specific quality of fire is colour, but it possesses, in addition, the quality of touch. Air has only one quality, and that is its specific quality of touch. Some critics of the Nyāya-Vaiśeṣika account of the material substances deny the validity of these propositions.

[80] PP., p. 46; PTN., p. 41.
[81] NLVK., p. 179.

In their view, earth has no quality other than odour; it is the admixture with water that imparts to it the quality of taste. In like manner, the presence of fire and air imparts to earth the qualities of colour and touch respectively. The presence of colour and touch in water and the presence of touch in fire admit of a similar explanation.[82] In reply to these critics Vātsyāyana adduces the following arguments:[83]

(*i*) If the colour of earth and water were not their own, they would become colourless and, therefore, imperceptible. If it is contended that contact with fire or light makes earth and water perceptible, it will necessarily follow that air also cannot remain imperceptible when it is brought in contact with light. But the imperceptibility of air under all conditions, according to the orthodox Naiyāyika, is beyond dispute.

(*ii*) The touch of air cannot be the cause of the touch of fire, water or earth. For the touch of air is neither hot nor cold, but the touch of fire is positively hot, while that of water is cold. The touch of earth, though resembling the touch of air, is explained as due to the action of heat (*pākaja*). Again, the colour of fire cannot be the cause of the colour of water or earth. The colour of fire is glowing white, but water has a non-luminous whiteness, while earth has all the seven colours. Likewise, earth cannot be said to derive its taste from contact with water; the taste of water is sweet, while earth has all the six tastes.

(*iii*) It is a matter of common experience that contact with fire and water makes air feel warm and cold respectively. In either case, the natural temperate (*anuṣṇāśīta*) touch of air is suppressed. But how can the natural touch of air be suppressed if fire and water do not possess counter-touches of their own? The touch of air cannot be the cause of its own suppression. Hence it must be concluded that fire has its own distinctive touch of hotness, and water its native coldness.

[82] NBh., III. i. 65-66.
[83] *Ibid.*, III. i. 67.

5. Matter and Motion

(a) *The Characteristics of Motion*

Motion, as we have seen, is an important characteristic of matter. The mobility of material substances follows naturally from their limited magnitude (*mūrtatva*). Matter, however, whether atomic or composite, is *intrinsically* static. It cannot move unless it is given a start by some external force, and to this extent matter is inert. That a body owes its movement to something other than the body itself,—to a push or a pull from outside, or to some quality like weight (*gurutva*) or fluidity (*dravatva*) residing in the body, is, of course, an obvious fact. We shall find, in course of our enquiry into the nature and behaviour of atoms in the next chapter, that the motion of free atoms also can under no circumstances be spontaneous. It is due to the operation of *adṛṣṭa* or some other force.

Motion, according to the Vaiśeṣika, is the independent and direct cause of change of position in a body. The change of position which is produced by a unit of motion implies in reality three distinct events in the relation of a moving body to its spatial environment at three consecutive moments. These are (*i*) the disjunction (*vibhāga*) of the body from a point of space, (*ii*) its loss of contact with that point (*pūrvasaṃyoganāśa*), and (*iii*) the establishment of its contact with another point (*uttarasaṃyogotpatti*). A motion originates only to produce these events, and immediately after having produced them in succession, it ceases to exist. A motion can thus have a span of five moments only,—three moments of actual existence, preceded by the moment of origination and followed by the moment of destruction. Motion is, therefore, supposed to be destroyed by the conjunction produced by itself.[84]

A single unit of motion can never belong to more than one body, so that when a body moves, its motion belongs exclusively to itself. This is why when a particular body starts or stops moving, it is not expected that others also would do the same as

[84] PPBh., p. 290.

a matter of necessity. It is, of course, true that we often come across bodies changing their positions simultaneously, but this is not due to a single motion being shared by all of them. The motions of these bodies, though synchronous, are numerically different, each motion being produced by its own particular cause and effecting a definite change of position only in the body to which it belongs.[85]

A body can have one and only one unit of motion at any particular moment. A unit of motion being instantaneous produces only the minimal change of position in a body. If, therefore, at any given moment there cannot be in a moving body any but this one and the simplest kind of positional change, it would be superfluous to suppose that the body possesses at that moment more than a single unit of motion. Supposing that two synchronous motions are possible in a body and that they operate in opposition to each other, they will either neutralize each other and immobilize the body, or produce a definite change of position in it. But to account for this change of position a single motion would be quite adequate, and the assumption of a second motion would have no justification, for there would be no disjunction or conjunction to be explained by it.[86]

A motion is incapable of producing another motion. If it were not so, there would inevitably be an interminable succession of motions in a body once it started moving, each unit of motion producing another, and so on *ad infinitum.* But the application of the principle of inertia in regard to a moving material substance is denied in the Nyāya-Vaiśeṣika system. Moreover, if a motion could produce another motion, it would do so only immediately after it has itself come into existence, which means that the disjunction caused by the first motion and the emergence of the second motion would be synchronous events. But since the first motion has already

[85] NK., p. 290.
[86] *Ibid.*

brought about the complete disjunction of the body from anything that was in contact with it, there would be nothing from which the body could be disjoined by the second motion, for disjunction necessarily presupposes conjunction, and no fresh conjunction has yet been produced in the body. The difficulty cannot be got over even by supposing that the production of the second motion takes place at a later moment, *i.e.*, when the first motion destroys the previous conjunction, or when it produces a fresh conjunction immediately before its own cessation. But at neither of these two moments there is an actually existing conjunction, and so the impossibility of the production of a disjunction stands as before. There is, therefore, no evidence of the operation of a second motion at any stage. Besides, the assumption that a moment or two may intervene between one motion and the production of another by it, is in direct contravention of the principle of causality which requires the cause to be immediately antecedent to its effect.[87]

(*b*) *Types of Motion*

Motion is always understood in reference to a certain direction. Taking direction as the basis of classification, the Nyāya-Vaiśeṣika system has distinguished the following kinds of motion :

(*i*) Throwing upwards (*utkṣepaṇa*) and throwing downwards (*avakṣepaṇa*). These are vertical motions in opposite directions, pertaining to a body as a whole and resulting directly or indirectly from volitional effort (*prayatna*). Such motions are found in a hand or a ball when it is tossed up or dropped down vertically.[88]

(*ii*) Contraction (*ākuñcana*) and expansion (*prasāraṇa*). Contraction is a kind of motion that imparts a curved shape to a straight, flexible body. It is through this kind of motion

[87] VUp., I. i. 11.
[88] *Ibid.*, I. i. 7.

that a body is made to occupy a smaller amount of space without undergoing any loss of its parts or any change in the already existing constitutive combinations of those parts. It is really the motion of one end of a body, say the top-end, towards the other end, *viz.*, the root-end, resulting in the disjunction of the former from the part of space occupied by itself and its conjunction with the position of the latter. When, again, the same top-end, now in conjunction with the root-end, starts moving in the opposite direction, we have what is called the motion of expansion, the motion that straightens out a curved body and makes it occupy a larger amount of space. This motion produces the disjunction of the top-end from the position of the root-end and eventually its conjunction with its own original position. Thus when a body contracts, its parts are conjoined ; and when the same body expands, the conjoined parts are separated. But in either case, the body itself as a whole remains intact ; that is, there is no disturbance in the original arrangement and combination of the parts, which led to the formation of the body in question.[89]

(*iii*) Whatever type of motion is not covered by the varieties mentioned above is referred to by the generic term *gamana*, which, therefore, implies motion in general. Motions not included in *gamana* have their respective directions definitely fixed. Besides, they are all directly or indirectly related to volition. *Gamana*, on the contrary, embraces different kinds of motion, such as rotatory motion (*bhramaṇa*), upward flaring (of the flames of fire), flowing down (of liquids), falling down (due to weight), evacuatory motion (*recana*), etc. It is thus apparent that the directions of the different motions subsumed under *gamana* are not fixed ; that is to say, they produce conjunctions with and disjunctions from points of space in different directions. According to another view, *gamana* stands for all unspecified kinds of motion which do not originate from volitional effort.[90]

[89] *Ibid.*
[90] PPBh., p. 292; VUp., I. i. 7.

(c) *Motion in Relation to Its Causes*[91]

A body is intrinsically static and is supposed to be set in motion by some quality present in it.[92] We have already referred to most of those qualities which operate jointly or severally to produce various kinds of motion. We propose here to consider motion itself from the standpoint of its relation to all such causal qualities and distinguish the various types of motion in accordance with the forces that produce them. They are as follows:—

(*i*) The falling motion (*patana*), say, of a fruit from a tree, initiated by weight (*gurutva*). The force of weight is counteracted by volitional effort (*prayatna*), as when a flying bird keeps itself from falling down ; by contact (*saṃyoga*), as when a bird's nest is supported by the branch of a tree ; and by impulse (*vega*), as when an arrow flies on transversally for some time before dropping down on the ground.[93]

(*ii*) The downward flowing motion (*syandana*) of liquids in the form of a stream, caused by the quality of fluidity (*dravatva*) jointly with weight.[94]

(*iii*) Motion caused by volitional effort (*prayatna*), *e.g.*, the movement of one's hand for taking food, or for striking an enemy.[95]

(*iv*) Motion due to direct contact with a moving body possessing impulse (*vegavaddravyasaṃyoga*). This contact is of two kinds, impact (*abhighāta*) and pressure (*nodana*). Impact is a form of violent, sound-producing contact which is immediately followed by the disjunction of the bodies joined together by contact. If, however, the contact persists and silently produces motion, it is called pressure. The rebounding motion

[91] For a fuller treatment of the subject *vide* B. N. Seal : *The Positive Sciences of the Ancient Hindus*, pp. 131-136.

[92] VS., I. i. 19.

[93] VUp., v. i. 7.

[94] *Ibid.*, v. ii. 4.

[95] VS., v. i. 1.

of a ball immediately after it is dropped on the hard ground is caused by impact. The movement of a creeper as the wind pushes it is due to pressure.[96]

(*v*) Motion due to contact with a body which is itself in contact with another body possessing impulse (*vegavaddravya-saṃyuktasaṃyoga*), *e.g.*, the movement of a chariot when it is pulled by horses. Here the movement of the running horses is transmitted to the chariot by the reins or ropes which are in contact with both the chariot and the running horses.[97]

(*vi*) Motion caused by impulse (*vega*). The quality of impulse, which, as already indicated in a previous section, is gained by a body when it completes its first unit of motion, produces, in its turn, a continuous series of motions in the same body and in the direction of the original motion.[98] Since, on the Vaiśeṣika view, motion is instantaneous and incapable of producing another motion, the continuity of motion in any form cannot be explained except on the hypothesis of impulse. Impulse is produced by the first unit of motion in a body, provided the motion is initiated by the weight or fluidity of that body, or is due to the contact of that body with another body possessing impulse, such contact being necessarily of the nature of continued pressure or violent impact. The force of impulse in a moving body is counteracted by the contact of that body with a tangible substance. If the tangible substance is a hard and solid earthy body, the impulse in question is immediately neutralized. If, however, the substance is such as can offer less powerful resistance to the moving body, the impulse

[96] VUp., v. ii. 1.

[97] *Ibid.*

[98] There is a difference of opinion between the Naiyāyika and the Vaiśeṣika on the question of impulse. According to the Naiyāyika, a continuous series of motions is due to a series of impulses, each motion producing an impulse and each impulse producing a fresh motion after destroying the one by which it is itself produced. The Vaiśeṣika, on the other hand, holds that a single impulse continues to operate till the cessation of the last motion of the series. *Vide* VUp., v. i. 17; KR., p. 132.

persists for some time, though with diminishing strength, as it works against that resistance ; it eventually exhausts itself, and then the body in motion ceases to move.[99]

(*vii*) Motion due to elasticity (*sthitisthāpakatā*), *e.g.*, the initial movement of the branch of a tree towards its original position after it (sc. the branch) is forcibly dragged down and then released, the continuity of movement in the same direction being due to impulse.

(*viii*) Motion due to metempirical force (*adṛṣṭa*), *e.g.*, the first motion of atoms on the eve of a fresh cosmic creation, the upward motion of the flames of fire, the transversal motion of air, the movement of an iron-needle towards the magnet, etc. In all these cases, the operation of the metempirical force is assumed because of the belief that no empirical causes can be ascertained by any of the accredited instruments of knowledge.[100]

(*d*) *Motion as an Object of Perception*

Motion, according to Kaṇāda, is visually perceived when it inheres in a visually perceivable substance.[101] Śaṅkara Miśra adds that motion is the object of tactual perception as well, provided it belongs to a tangible body.[102] There is therefore no possibility of perceiving the motion of atoms or of minds.

There is an old view, recorded in the *Mahābhāṣya,* according to which there is no such objectively real thing as motion ; what is called motion is only a conceptual construction to explain the fact of one's reaching a particular place and thus having contact with it.[103] The Prābhākara, though a realist, was in all probability influenced by this old theory of motion. For, according to him, motion is under no circumstances an object of perception. We perceive only the moving body and the successive conjunctions and disjunctions that its motion

[99] NK., pp. 267-268 and 303.
[100] VUp., V. i. 15.
[101] VS., IV. i. 11.
[102] VUp., IV. i. 11.
[103] MBh., III. ii. 123.

produces. The presence of motion in the body is inferred from these conjunctions and disjunctions.[104]

The Bhāṭṭa Mīmāṃsaka and the Vaiśeṣika adopt more or less the same line of argument to refute the Prābhākara view. When a moving body comes to be conjoined with or disjoined from certain points of space, the conjunctions and disjunctions must have both the body and the space as their substrates. If, therefore, motion is to be inferred from these conjunctions and disjunctions, it must be inferred as belonging to the body as well as the space. This, however, is an obvious absurdity, for it is the body alone that moves, and space by its very nature is incapable of motion. Conjunctions and disjunctions thus do not constitute the valid logical ground for the inference of motion in a perceived body. Such motion should be supposed to be an object of direct perception.[105]

[104] PP., p. 79.

[105] NK., p. 195; SD., p. 71.

CHAPTER VII

THE FORMS OF MATTER

1. Atomic Matter

(a) *The Characteristics of Atoms*

Matter exists either as atoms or as composites. Atoms are the ultimate constituents of bodies; they are indivisible and eternal.[1] The composite forms of matter, on the contrary, are divisible and transient, their origination and destruction being due to the conjunction and separation of the parts that compose them. The atoms assumed in the Nyāya-Vaiśeṣika system are not obviously the ordinary 'chemical atoms' which differ in weight and size; they are rather uniform ultimate units of matter, in which the divisibility of a body reaches its limit.

There are four kinds of atoms corresponding to four classes of material substances. The atoms of any substance are supposed to possess all the specific qualities of that substance. But while in the atoms of water, fire and air the specific qualities are eternal and unchanging, those in the atoms of earth are subject to transition under the influence of heat. Thus all atoms of the same substance (except, of course, the atoms of earth) are similar qualitatively; and they differ qualitatively from the atoms of other substances. The view of Democritus that atoms

[1] This Nyāya-Vaiśeṣika conception of atoms must not however be confused with that of the Yoga. Atoms, in the Yoga view, are, no doubt, the smallest particles into which gross matter is divisible, but they are not ultimate, indivisible units of matter. They result from the combination of infra-atomic, subtle, active material principles known as *tanmātras*. The combination of parts (*saṃghāta*), according to the *Yogabhāṣya*, is either *yutasiddhi*, when they are held together rather loosely and are easily separable, or *ayutasiddhi*, when they cohere into a solid unit which does not easily disintegrate. An atom is cited by Vyāsa as an example of the effect of the latter kind of combination. *Vide* YBh., III. 44.

differ only quantitatively is not favoured by the Nyāya-Vaiśeṣika philosopher. Nor does he agree with the Greek atomist that all qualitative variety in gross bodies is due to the quantitative variety in the number, shape, size and arrangement of the component atoms.[2] He holds that a quality cannot be explained by reference to anything other than a quality and that, therefore, the presence of any quality in a gross body is ultimately traceable to a similar quality in its constitutive atoms.[3] The specific qualities of all the four kinds of atoms are latent or unmanifested (*anudbhūta*) ; this is one reason why these qualities are supposed to be imperceptible, the other reason being that they inhere in substances in which there is no gross magnitude accruing from the combination of a plurality of parts.[4] For more or less the same reasons the atoms themselves are not amenable to sense-perception ; they do not possess gross magnitude (*mahattva*) and manifested colour (*udhbūtarūpa*), and thus fail to fulfil the conditions of such perception.[5] It is, however, held that atoms are perceivable by the *yogin* with his supernormal intuitive vision upon which no limitation can be imposed by any external factor.[6]

(*b*) *Atoms as Unique Particulars : the Category of Particularity*

Atoms, of course, are numerically different from one another and from all other things. But the differences of atoms cannot be explained in the same way as the differences of

[2] The use of the words 'quantitative' and 'qualitative' in this context is rather misleading. For what is called quantity (*i.e.*, size, number or weight) in common parlance is nothing but a quality (*guṇa*) according to the Nyāya-Vaiśeṣika. The term 'qualitative' should therefore be understood to have reference *mainly* to the specific qualities (*viśeṣaguṇa*).

[3] The only case of exception to this rule is the emergence of gross magnitude in a body through the causal influence of number, *i.e.*, the *plurality* of constitutive factors.

[4] VS., IV. i. 8-9.

[5] *Ibid.*, IV. i. 6.

[6] VUp., VIII. i. 2.

composite substances. Composite substances are distinguishable on the basis of differences in their constitutive elements. But atoms are ultimate simples. Their differences from one another, therefore, must be of an ultimate nature. In fact, they are differentiated as individuals (of course, in yogic experience) even when they partake of a common class-character (say 'earthness' or 'waterness') and possess identical qualities and functions and thus have apparently no basis of differentiation. The Vaiśeṣika seeks to explain the position by supposing that each atom possesses an ultimate differentiating characteristic called particularly (*viśeṣa*) by means of which it is distinguished from all other atoms. That all atoms are judged as distinct individuals is because each of them has its own particularity. What is true of atoms is also true of all other eternal substances, and exactly on the same grounds.[7] There is, therefore, a differentiating feature or particularity corresponding to and inhering in each of the innumerable eternal substances. Particularities are held to be eternal because we cannot conceive of any eternal substance remaining undifferentiated from others at any time. Particularity is thus an independent self-sufficient principle of differentiation. It is the unique feature of a single individual, and so its only function is to differentiate (*vyāvṛtti*). It is ultimate (*antya*) in the sense that it functions even when every other means of differentiation fails.

The particularities, though constituting the grounds of differentiation of their substrata, are themselves self-differen-

[7] PPBh., pp. 321-322.

The whole argument for the acknowledgment of the category of particularity is based upon the consideration that when the intuitive experience of the *Yogin* takes cognizance of each eternal substance as different from others, it can do so only on the basis of some unique feature perceived as present in that substance. This appeal to yogic intuition as to the experience of uniqueness in each of the eternal substances is found for the first time in Praśastapāda. But it is interesting to note that the orthodox Yogins (Pātañjalas) themselves do not recognize particularity as a category. They atempt to explain the experience of uniqueness referred to above through what they describe as discriminatory cognition (*vivekajajñāna*). *Vide* YBh., III. 53.

tiated (*svatovyāvṛtta*). That is, each particularity is different from all other objects (including other particularities) by its own distinctive self-individuality (*svarūpa*). To suppose that a particularity, in order to be differentiated from others, should require another particularity to inhere in it, is virtually to admit the necessity of an infinite series of particularities for explaining the uniqueness of a single particularity. But that is an obviously absurd position.[8]

There cannot be any class-character (*jāti*) like *viśeṣatva* common to all particularities, for a particularity partaking of such a class-character will be distinguishable by means of that character from things of other classes and thus forfeit its own self-differentiated nature. Moreover, particularities sharing a common class-character, like the individuals of any other class, can only be differentiated from one another through some individual characteristic or distinctive feature of each of them. But in that case, again, particularities will cease to be self-differentiated reals.

The function of particularities is strictly limited to the differentiation of eternal substances. The qualities (or motions) of these substances do not require particularities to be attributed to them for their differentiation. For dissimilar qualities[9] in them are differentiated through their respective specific universals; and similar qualities,[10] through their differentiated substrata.[11]

Particularity, on the Vaiśeṣika view, is a distinct type of real and cannot be brought under any other category. It is not substance, because it is not the substratum of quality; nor is it quality or action, for it does not participate in a universal. It is manifestly not a relation and so cannot be identified with *samavāya*. Each particularity inheres only in one eternal substance and is therefore not a universal, which is supposed to be related to many individuals (substances, qualities or actions).

[8] NK., p. 324.
[9] E.g., redness and blackness, or touch and taste.
[10] E.g., the redness of one atom and that of another.
[11] Din., p. 83.

The Neo-Naiyāyikas headed by Raghunātha Śiromaṇi deny the logical necessity of acknowledging particularity as a distinct category. Atoms and, for the matter of that, all eternal substances, in their view, like the particularities of the orthodox Vaiśeṣika conception, are differentiated from one another by themselves. Each such substance is a unique particular by its very nature, and not because of its supposed relation to a distinguishing feature.[12]

(c) *The Motion of Atoms*

That the motion of a body as a whole should necessarily involve the motion of its constitutive atoms is, of course, an obvious fact. In the present section, however, we are concerned with the motion of atoms as such, *i.e.*, of atoms that are not parts of a body. Is it the *nature* of such atoms to move constantly, as is believed by some Greek atomists? The Nyāya-Vaiśeṣika replies that free atoms have nothing in their simple nature which can compel them to move, although, as a matter of fact, they are constantly in motion.

The motion of free atoms is supposed to be of two kinds, *viz.*, creative motion and non-creative motion. The creative motion is one which produces such conjunction of atoms as contributes to the formation of gross bodies, and eventually of the world of concrete existence. This motion is produced in atoms only on the eve of a fresh cosmic creation after the period of cosmic rest (*pralaya*) is over.[13] The non-creative motion, on the other hand, is not productive of conjunction or disjunction of atoms. This kind of motion simply disjoins atoms from the points of space occupied by them and conjoins them with the contiguous points of space. It may occasionally lead to a sort of juxtaposition or loose grouping (*pracaya*) of atoms, but never brings them close enough to be actually combined

[12] PTN., pp. 30-31.

[13] Free atoms are the only material principles that exist during the period of cosmic rest, for all bodies are then supposed to be reduced to their ultimate constituents.

into composite bodies.[14] This motion which has no bearing upon the process of creation is possible for atoms only during the period of cosmic rest, *i.e.*, only so long as there is no moral urge for creation. It is, however, superseded by creative motion when the necessity for a fresh creation arises. The only purpose which is supposed to be served by non-creative motion is to mark the duration of cosmic rest in terms of the minimal unit of time (*kṣaṇa*) determined by each unit of such motion.[15]

In neither of these two cases, however, is the motion of free atoms spontaneous. The cause of creative motion is believed to be *adṛṣṭa*, that unseen moral force which guides the destiny of souls according to their *karman* and requires them to be provided with properly equipped bodies and an appropriate objective world for the experience of pleasure and pain. It is due to the operation of this metempirical force that atoms start moving to get together in order that they may be integrated into countless varieties of things. The non-creative motion, on the other hand, is supposed to be produced in a different way. It is only as the result of a violent shaking or impact that a body is dissolved. But the effect of the impact is not lost with the dissolution of the body, for it sets the atoms of the dissolved body in motion. And this motion in its turn produces in the atoms the quality of impulse (*vega*) which keeps them moving, *i.e.*, vibrating (*spandamāna*), continually during the whole period of cosmic rest.[16]

2. Types of Material Composites

(*a*) *Organisms*

The non-eternal, composite forms of each material substance are of three kinds: organisms (*śarīra*), senses (*indriya*) and objects (*viṣaya*).[17] We propose here to discuss in some detail the nature of these composites and to show how they have been classified by the writers of the Nyāya-Vaiśeṣika school.

[14] NKuB., p. 91.
[15] NKu., pt. I, p., 333.
[16] NKuB., p. 91.
[17] PPBh., p. 27.

In the *Nyāyasūtra* three characteristics of an organism are recorded.[18] Each of these characteristics is, according to Vātsyāyana, a distinctive mark of an organism and thus gives a complete definition of it. Firstly, the organism is described as the locus of conscious activity, *i.e.*, of such effort (*ceṣṭā*) as is motivated by the desire to acquire pleasure and avoid pain. No such activity is seen in an insentient thing like a sculptured human figure or a gold vase, which, therefore, is not an organism.[19] The organism is also required to be a final composite (*antyāvayavin*), *i.e.*, it must not be a part of any other whole. A hand, for instance, is a part of the body and, therefore, cannot be called an organism, although it may be the locus of conscious activity.[20] Secondly, the organism is said to be the seat of the senses (*indriyāśraya*). The relation between the organism and the senses, however, is not simply one of conjunction or external union. The organism sustains the senses and enables them to function properly.[21] The third characteristic of the organism is that it is the locus of enjoyment (*bhoga*), *i.e.*, of the experience of the pleasurable and painful consequences of previous acts. The implication is that pleasure and pain can be experienced by the soul only when it is in conjunction with a suitable organic vehicle or body, and never independently of that body.[22] It thus follows that the soul is compelled by destiny or unseen moral force (*adṛṣṭa*) to undergo pleasure and pain and that for this purpose the soul under the influence of the same moral force comes to be associated with an organism and that this organism is produced, as we shall presently see, out of the homogeneous atoms of a particular material substance in pursuance of the same moral objective. It is through an organism that the consciousness of the soul is revealed and life pulsates.

Earthy organisms are of two kinds: (*i*) those that are

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[18] *Ceṣṭendriyārthāśrayaḥ śarīram.* NS., I. i. 11.

[19] NBh., I. i. 11.

[20] SM., p. 157; NSVr., I. i. 11.

[21] NM., pt. II, p. 46.

[22] NBh., I. i. 11.

sexually generated (*yonija*), *i.e.*, from the union of a sperm and a germ element ; (*ii*) those that are asexually generated (*ayonija*). The former are subdivided into (*a*) viviparous, (*jarāyuja*), such as the body of a human being or of a quadruped ; and (*b*) oviparous (*aṇḍaja*), *e.g.*, the body of a bird, a snake or a fish. Asexually generated organisms are of two kinds : (*a*) *svedaja, i.e.*, born of moisture, and (*b*) *udbhijja, i.e.*, born of vegetable organisms. The bodies of worms, mosquitoes, etc. are examples of the former, and plants of the latter.

This classification of organisms slightly differs from what is given by Praśastapāda. According to him, plants are not animal organisms but forms of inorganic matter. They are what he calls stationary objects (*sthāvaraviṣaya*). Udayana and some later writers of the school, however, are found invariably to refer to plants as organisms in the technical sense. It has been shown that every plant has a living principle or soul inside it. If any part of a plant is broken or injured, it gets healed up in course of time, and this can be explained only on the hypothesis of the operation of some vital principle (*prāṇavāyu*) inside it. That the plant is a living organism, is also inferred from its getting nutrition by sucking up juices from the soil.[23] These arguments for including plants among living organisms are rather interesting, for they seem to suggest a theory of distinction between organic and inorganic matter, which even a modern scientist will not hesitate to accept, at least for all theoretical purposes. For no amount of subtle argumentation can get over the fact that a living organism possesses such characteristics as assimilation, growth, sensitivity, etc., and is distinguished by these very characteristics from the non-living.

The bodies of celestial sages (*devarṣi*) and of some beings condemned to hell are also supposed to be asexually generated earthy organisms. The Vaiśeṣika has given a curious explanation of the formation of these organisms. Sexually generated organisms are produced from atoms only after these have

[23] PPBh., pp. 27-28; KV., p. 58; SM., pp. 153-155.

formed themselves into special groups known as the germ and the sperm elements. But there are countless other atoms which do not undergo these special kinds of grouping and which are not confined to any particular place or direction (*aniyatadigdeśa*). These atoms being operated upon by a special kind of moral force (*dharmaviśeṣa*), either good or bad, get together and form themselves in the usual manner into dyads, triads, etc., and thus eventually produce the asexual bodies.[24]

Organisms are also produced from the atoms of water, fire and air. Such organisms are asexually generated and are held to be constitutionally incapable of having anything to do with this gross world of earthy matter. The Vaiśeṣika has, therefore, conceived of other worlds suitable for these organisms.[25] It may be contended that these three kinds of organisms, from their very composition, are incapable of developing sensory organs and active limbs, such as we find in an earthy organism like the human body. They, therefore, cannot be supposed to be organisms in the real sense, for there appears to be no possibility for them to function as the substrata of any conscious effort or of the experience of pleasure and pain. The Vaiśeṣika, however, replies that the contention is untenable and that these three kinds of organisms also must be admitted to be capable of serving the purpose for which every organism is produced. It is suggested that they derive this capacity from their association with earthy atoms acting as auxiliaries (*nimitta*). In fact, these organsims cannot even come into being unless their respective constituents are suitably connected with earthy atoms, which are believed to give them the necessary degree of firmness or consistency.[26]

There are some thinkers, *e.g.*, the Vedāntists, the Sāṅkhyas and the philosophers of the medical schools (*āyurveda*), who do

[24] NK., p. 33.

[25] The Vaiśeṣika accepts the mythological tradition that the organisms composed of water, fire and air live respectively in *Varuṇaloka*, *Sūryaloka* and *Vāyuloka*.

[26] NK., pp. 38, 40 and 45.

not accept the Nyāya-Vaiśeṣika account of the composition of organisms. In their view, no organism is wholly made up of earth or water or fire or air ; or to be more precise, every organism must be held to be constituted of all the five physical substances (*pāñcabhautika*). This, they argue, can be shown by an analysis of the qualities of the human body which, according to the Vaiśeṣika, is a purely earthy compound. The human body has not only odour, the specific quality of earth, but also viscosity, the distinctive quality of water, and warmth of touch, the distinctive quality of fire. So all these three substances must be held to be the constituents of the human organism. The existence of fire in a body is also proved by the digestion of food materials by the action of heat in the stomach (*jaṭharānala*). Air and *ākāśa* too are the constituents of the body, as is proved by the existence of breath and cavities respectively in the body.[27] The Nyāya-Vaiśeṣika, however, does not believe in the possibility of "heterogenic" or "poly-bhautic" compounds, whether organic or inorganic. He therefore rejects the view that all the five physical substances should unite as constitutive or material cause (*upādānakāraṇa*) in order to produce an organism.[28] The manifestation of the qualities of the five physical substances in the human organism may, in his view, well take place even though it be not constituted of all of them. Earth, it is maintained, is the material cause of the human organism ; the other four physical substances are its accessory causes (*nimitta-kāraṇa*). The active association (*upaṣṭambha*) of the other four physical substances makes possible the manifestation of their qualities, *e.g.*, viscosity, heat, etc., in the human body.[29]

Moreover, the Nyāya-Vaiśeṣika system maintains that no effect (substance or quality) can take place except through the combination of two component elements. Now, according to the law of qualitative causation, the quality in the effect is supposed

[27] NS., III. i. 30.

[28] According to the Vaiśeṣika, *ākāśa* is not matter and cannot be the material cause of any substance.

[29] NM., pt. II, p. 47.

to result from the corresponding quality of the substance which is the material cause of that effect. It follows that the specific quality of a composite substance must be explained as the effect of the specific qualities of the same class in the constituents of that substance. If, therefore, earth unites with water to form a compound, the compound will be devoid of odour, for odour is present in only one of the constituents, *viz.*, earth. Similarly, a compound of earth and fire will be odourless and tasteless, since odour and taste are possessed by only one component element, *viz.*, earth. Likewise, a compound of earth and air will be odourless, tasteless and colourless, for odour, taste and colour belong to earth alone, and not to air. But the presence of these specific qualities in the human organism is a matter of common experience. So it cannot be the result of the combination of all the physical substances.[30]

Furthermore, according to the Vaiśeṣika, whatever inheres simultaneously in perceptible and imperceptible substrata must itself be imperceptible. For instance, the contact of a visible tree with the invisible *ākāśa* is imperceptible inasmuch as the contact inheres in both of them. Of the five physical substances, some (*viz.*, earth, water and fire) are perceptible, and others (*viz.*, air and *ākāśa*) are not. If the human organism were a compound of all the five physical substances, it would evidently inhere in some perceptible and some imperceptible substances, and would itself be imperceptible—a consequence which is obviously absurd.[31] The Nyāya-Vaiśeṣika philosopher, therefore, concludes that the material causality in the case of every organism really vests in only one of the material substances, though the others may be associated with it as necessary conditions or accessory causes (*nimittakāraṇa*).

(*b*) *Senses*

A sense is defined as the supersensible instrument of immediate knowledge (*sākṣātpratītisādhana*), having its loca-

[30] NV. and NVTT., III. i. 28.
[31] VS., IV. ii. 2 and VUp. thereon.

tion in an animal organism (*śarīrasaṃyukta*).[32] The senses cannot themselves be sensed, but their existence is inferred as instruments necessary for the production of different kinds of perception. They are thus the instruments of the experience of pleasure and pain on the part of the soul. It is only those objects which come through the channel of the senses that can be perceived by the soul. So the soul, in spite of its ubiquity and actual contact with all objects, is entirely dependent upon the good offices of the senses for the realization of its own activity. Every living organism is equipped with one internal sense (*antaḥkaraṇa*), *viz.*, mind, and five external senses. Though the mind is the direct instrument of the experience of pleasure and pain, the external senses function as transmitting instruments so far as pleasure and pain derived from external objects are concerned. In the present section we are concerned only with the external senses which are held to be the products of the various physical substances.

Each sense is peculiarly adapted to the apprehension of the specific quality of a particular physical substance. Thus the different senses, the olfactory, the gustatory, the visual, the tactile and the auditory, are competent to cognize odour, taste, colour, touch and sound respectively. The five senses thus have their provinces sharply demarcated, each from the others. The sense of smell, for instance, is competent to and invariably does pick up odour alone in the midst of an assemblage of various sensible qualities, to wit, odour, taste, colour, touch and sound. Such selective action on the part of each sense is explainable only on the supposition that it has a natural affinity with the quality which it selects. In other words, it must itself possess a specific quality in order to be able to apprehend that quality in other things. This proves that each sense is constituted of the physical substance whose specific quality it apprehends. For instance, the sense of smell, cognizing odour alone, which is the specific quality of earth, must itself be held to be earthy in its constitution.

[32] KV., p. 54.

Similarly, the visual sense is composed of light (*tejas*), since it is the instrument of the sensation of colour which is the specific quality of light ; and similarly for the rest of the senses. Thus, on the Nyāya-Vaiśeṣika view, the external senses are subtle physical substances located in different parts of a physical organism and so finely differentiated that no one of them can do duty for another or for all.[33]

The Buddhists, however, think that there is no justification for regarding the senses as subtle and supersensible, or for distinguishing them from their visible seats in the organism, *i.e.*, from the physiological sense-organs or end-organs.[34] These organs, though obviously gross material substances, are found to be sensitive to external stimuli ; they may, therefore, be supposed to have themselves the capacity of functioning as instruments of perception of external objects. The visual sense, for instance, is not anything different from the eye-ball (*golaka*), for vision is found to fail only when the eye-ball is not in its normal healthy condition.[35]

The Sāṅkhyas as well as the Naiyāyikas and philosophers of other schools reject the Buddhist view primarily on the ground of its failure to explain the sense-perception of distant objects. They are all agreed that an actual physical contact between a sense and its object is an essential condition of the perception of that object. But an end-organ like the eye-ball, being a gross physical substance, is necessarily limited in size and is fitted on to the organism in a fixed position. There is, therefore, no possibility of its going out to reach an object lying at a distance.[36] The Buddhist view, again, cannot account for the sensuous apprehension of a large object like a tree or a

[33] NV. and NVTT., I. i. 12; NM., pt. II, pp. 47-48.

[34] *Adhiṣṭhānād bahir nā 'kṣam.* Dignāga's verse quoted in NVTT., I. i. 4.

[35] *Kṛṣṇasāre saty upalambhāt kṛṣṇasāram eva cakṣur iti Bauddhāḥ.* NVTT., III. i. 30.

[36] According to the Buddhist, the visual sense, *i.e.*, the eye-ball, can function effectively and produce the visual perception of an object even without coming into direct contact with that object.

mountain. For a gross sensory organ like the eye-ball cannot be expected to expand to the size of the object and cover its whole body. It is, therefore, suggested by the Sāñkhyas that a sense must be so constituted as to be all-pervading in character,[37] so that it can never be out of contact with any of its possible objects. It must also be something subtle and non-physical (*abhautika*), for such a sense alone is capable of undergoing a determinate modification, *i.e.*, of assuming under certain definite circumstances the form of its object, irrespective of the position and magnitude of the object. The Sāñkhyas, therefore, conclude that the sense is evolved from *ahañkāra* (the indeterminate ego-sense), which is an all-pervading, subtle material principle derived ultimately from *prakṛti*, the fundamental substance.[38]

While endorsing the Sāñkhya opposition to the Buddhist view, the Nyāya-Vaiśeṣika does not approve of the Sāñkhya theory of the character and composition of the senses. If all the senses were the evolutes of a common causal principle, as is held by the Sāñkhyas, they could not but be alike in their nature and function ; but that is obviously absurd. Moreover, there would be nothing to prevent each sense from being endowed with the capacity of manifesting all kinds of objects, for the sense in question should, on the Sāñkhya view, have an identity of nature with its causal stuff, the principle of *ahañkāra*, and this principle is supposed to have the capacity of manifesting out of itself not merely the object of that particular sense but the entire physical order comprising all sensible objects. The Sāñkhya theory apparently offers no satisfactory explanation of the obvious specialization of the senses and their selective action. The Nyāya-Vaiśeṣika system, as we

[37] The theory of all-pervading senses has been attributed to the Sāñkhyas in most of the Nyāya texts. We do not find any trace of this theory in the *Kārikā* of Īśvarakṛṣṇa. The *Yuktidīpikā* (an old commentary on SK., ed. Calcutta, 1938, p. 108) refers to it as the view of Vindhyavāsin.

[38] NM., pt. II, p. 49; STK. on verse 26.

have already indicated, sets down the difference in function of the senses to their constitutional differences, *i.e.*, to the fact that they are composed of different physical substances.[39]

In the Nyāya-Vaiśeṣika view, therefore, the senses are neither the visible physiological organs nor the all-pervading evolutes of *ahaṅkāra*, but subtle physical (*bhautika*) substances located in different organs. The visual sense, for instance, is an invisible product of the light-stuff (*tejas*), and like light it manifests colour. A distant object like the moon is visible, because the light of the visual sense is supposed to issue from the eye and go forth in long rays to reach the object. The optic light travels with an incredible velocity, so that all the things (say the branches of a tree, the moon visible through them and a far-off star) that it successively comes in contact with in course of its progress, appear to be seen simultaneously. The perception of a large object, say, of a mountain, is possible because the optic light, like the light of a small lamp illuminating a large area of space, spreads out and pervades the whole body of the object. The contention of the Sāṅkhya that such sensuous experiences should require a non-physical theory of senses to explain them, is therefore without any foundation.[40]

As senses are invariably the instruments of perception, and as the existence of only five such senses has been established, it follows that the so-called operative organs (*karmendriya*), *viz.*, the speech-organ (*vāc*), hands (*pāṇi*), feet (*pāda*), rectum (*pāyu*) and the genital organ (*upastha*), cannot be classed as senses. If they are to be designated as senses simply because they are the organs of some specific operations, then every organ, *e.g.*, the heart or the stomach or the liver, on account of its distinctive physiological function inside the organism, would also be entitled to be classed as a sense. But this is an obvious absurdity.[41]

[39] NM., pt. II, p. 52.
[40] NVTT., I. i. 4.
[41] *Ibid.*, III. i. 60.

(c) *Some Views Regarding the Tactile Sense Examined*

Some philosophers, belonging probably to an old school of Sāṅkhya, are of opinion that the tactile sense (*tvagindriya*) is the only primary sense and that it has the intrinsic capacity of apprehending all kinds of sensible objects.[42] The tactile sense has its seat in the whole of the skin and is thus diffused over the whole surface of an organism. That the physiological organs, the seats of the so-called special senses, are found to react to external stimuli is because the tactile sense is present in them. There can be no knowledge unless the mind comes in contact with the sense of touch and through it with the sensible qualities of odour, taste, etc. Hence there is no necessity of postulating the existence of such senses as those of smell, taste, etc.[43]

The Naiyāyika does not subscribe to this view of the sense of touch and adduces the following arguments to prove his position :[44]

(*a*) The fact that we perceive the quality of touch in a tangible substance proves that there is a special sense which is the instrument of tactual perception. If this sense were the sole instrument for receiving odour, taste and other sensible qualities, then the blind and the deaf would be able to see and hear respectively with the help of the sense of touch. It may be argued in reply that the part of the tactile sense located in the eye is of a specialized nature, adapted to vision. Similarly, there is a peculiarly sensitive part of the tactile sense, present in the ear and adapted to hearing. It is a verified truth that a particular part of the tactile sense is competent to cognize a particular object ; not every part of it can cognize all kinds of objects. A blind man, though possessing the sense of touch, cannot see, because he does not

[42] *Sāṅkhyās tu tvag eva buddhīndriyam . . . . sai 'va ca vicitraśakti-mattayā rūpādisākṣātkāriṇī . . . . . . ity āhuḥ.*—Raghunātha Bhaṭṭa : *Padārtharatnamālā*, p. 22. Vācaspati also makes a similar statement in the *Bhāmatī*, II. ii. 10.

[43] NBh., III. i. 52.

[44] *Ibid.*, III. i. 53-61.

possess the specialized part of the tactile sense, which is adapted to vision. The Naiyāyika refutes the argument by observing that to say that the tactile sense has specialized parts sensitive to different kinds of objects, such as odour, taste, etc., is virtually to admit that there are as many senses as there are sensible qualities.

(*b*) If the sense of touch were the sole sense, then its contact with odour, taste and other qualities would lead to the simultaneous apprehension of all of them. But this is certainly not in consonance with experience.

(*c*) The experiences of the five sensible qualities are of five different kinds ; so there must be five different instruments corresponding to them.

(*d*) The seats of the senses are five. The tactile sense whose existence is inferred from the perception of touch pervades the whole skin of the body, both inside and outside. The sense of vision which is inferred from the experience of colour is located in the eye-balls. Similarly, the seats of the senses of taste, smell and hearing are respectively the tip of the tongue, the fore-part of the nostril and the drum of the ear. Unless the differences in the seats of the senses were recognized, it would be impossible to explain the defection of sensibility brought about by injury to, or the diseased condition of, the relevant seats of the senses. And once we admit the fivefold nature of the seats of the senses, we must conclude that there are five different senses.

(*e*) As has already been shown, the senses are constituted of the five physical substances.[45] As there are five different causes, there must be five different senses effectuated by them. A particular sense with its distinct sensitiveness cannot be supposed to be composed of a number of heterogeneous physical substances.

The upshot of this discussion is that all the five senses, in the Nyāya-Vaiśeṣika view, stand decidedly on an equal

[45] The sense of hearing is constituted of *ākāśa* in the sense that it is identical with a portion of *ākāśa* which is present in and limited by the ear-cavity ; for *ākāśa* cannot be the material cause of any substance.

footing so far as their contribution to the apprehension of their respective objects is concerned. The functions of these senses are mutually exclusive, and no one of them can be of any help to another, although each sense is dependent, for its operation, upon its contact with the mind, the internal organ, which, in its turn, is in contact with the self. But the theory of equal status and mutual independence of the senses appears to have been accepted by some later exponents of the school with an important modification. They have propounded a theory of perception, which gives unmistakable preference to the tactile sense and makes its contact with the mind an essential condition of the origin of consciousness. This rather extraordinary conclusion has been sought to be deduced from an analysis of the phenomena of dream-consciousness and dreamless sleep. There is no doubt that in the dreaming condition there is some sort of psychical activity. This is explained as due to the stimulation of the subconscious impressions of previous experiences (*saṃskārodbodha*) by some active sensory stimulus. But what is the stimulus that can possibly operate in the dreaming state? A sleeping man does not see or hear or smell or taste, so that the organs of these activities may for all practical purposes be supposed to be defunct for the time being. But even a sleeping man cannot avoid experiencing the tactual sensation of heat that is constantly generated inside his organism due to various physiological activities. Nor can he help feeling the touch, hard or soft, of what he lies down upon or leans against. Thus although other senses are inoperative through the absence of their contact with the mind, the tactual experiences continue, though not quite articulately; and so long as they do continue, *i.e.*, so long as the mind is in contact with the touch-sense, sleep also will continue to be disturbed by dreams. Dreamless sleep (*suṣupti*), which is characterized by the complete absence of psychical activity, is believed to set in only when the mind enters into what is called the *purītat* nerve. And as this nerve is held to be the only part in an organism in which none of the senses is located (*nirindriyapradeśa*), the mind locked in it is necessarily out of

contact with even the tactile organ. So the suspension of consciousness in dreamless sleep is considered to be the direct result of the mind's loss of contact with the sense of touch.[46] It is therefore concluded by Viśvanātha and others that the contact of the mind with the tactile sense (*tvaṅmanaḥsaṃyoga*), or with skin (*carmamanaḥsaṃyoga*) which is supposed to be the seat of the tactile sense, is the universal condition of psychical activity.[47] In other words, the contact of the mind with any other sense is incapable of producing the relevant sensation unless the mind is also in contact with the sense of touch. This theory, however, necessitates the hypothesis that the mind's contact with the sense of touch is itself ineffective when it is in contact with some other sense. Thus when the mind is in contact with the visual sense in addition to its contact wth the sense of touch, which is made the universal condition of all psychical activity, it is the visual perception that takes place and not a tactual experience; and this fact can be explained only by supposing that the condition of the former is here more powerful than that of the latter. This is also true of other senses. Thus in all cases of sense-perception where the mind is in contact with the tactile sense and another sense, the contact with the tactile sense is ineffective; and it is effective only when the mind is not in contact with any other sense.[48] So this theory of double contact does not provide any advantage over the traditional view, but, on the contrary, adds to the complexity of the physiological conditions of psychical phenomena. In the traditional view, as explained by Udayana and others, the contact of the mind with the self is the sufficient condition of sensuous experience, provided the mind is in contact with some sense or other. The theory which substitutes skin for the tactile sense is equally exposed to the charge of complexity, although it avoids the dilemma which is presented by the hypothesis of the mind's contact with two senses at a time.

[46] NKu., pp. 357-358.
[47] SM., pp. 247-248.
[48] *Ibid.*, p. 250.

(*d*) *Objects*

An object is whatever is conducive to pleasure and pain which the soul has to experience due to the working of the unseen moral force. It stands for all composite substances from the triad onwards excepting, of course, the organisms and the senses. An object is always a gross, perceptible inorganic body, and it is to be actually perceived if it is to evoke any emotional reaction in the subject, *i.e.*, the soul.[49] There is, however, no necessity for any conscious reference on the part of the soul to its body or senses, although they are also necessary factors in its enjoyment as much as the object. A physical organism with its sensory equipment forms a part of what may be called the 'subjective group' and is therefore distinguished from the object, which under all circumstances remains outside that group. A dyad also, though a composite substance, is not an object ; it represents only an intermediate stage in the process of genesis of the objective world, and being infra-sensible and devoid of any specific class-character (*avāntarajāti*), cannot contribute to the experience of pleasure and pain.

Earthy objects are of three kinds ; (*i*) clay (*mṛt*), under which we have potteries, bricks, etc. ; (*ii*) stone (*pāṣāṇa*), *e.g.*, diamond, rocks, etc. ; and (*iii*) stationary objects (*sthāvara*), such as trees, creepers, etc.[50] Objects composed of water include rivers, seas and snow.[51] Objects produced from fire are of four types : (*i*) the terrestrial (*bhauma*) fire, such as the flame of a burning log of wood or of an oil lamp ; (*ii*) the celestial (*divya*) fire, such as the light of the sun or a flash of lightning ; (*iii*) the gastric (*audarya*) fire which helps digestion ; and (*iv*) the subterranean (*ākaraja*) fire, such as is found in the composition of metals like gold, silver, etc.[52] The object which is the product of the elemental air is the ordinary wind that makes itself known to us through its peculiar feel to the

[49] KV., p. 54.
[50] PPBh., p. 28.
[51] *Ibid.*, p. 36.
[52] *Ibid.*, p. 39.

touch. Besides this, there is another kind of air-product called *prāṇa* or vital air which is believed to keep the machine of the body at work and thus enable its parts to discharge their functions properly. Although vital air is really a single entity, it receives various names on account of its active association with and influence upon the different organs inside the body. The *prāṇa* is the wind that is inhaled and exhaled through the mouth and the nostrils. The *apāṇa* has its seat in the intestinal region and ejects the wastes of the body. The *samāna* carries the internal fire and works the organs of digestion. The *udāna* causes things to move upward and is concerned in keeping the body erect. The *vyāna* pervades the whole body and carries nutrition to all the parts of it.[53]

[1] NK., p. 48.

CHAPTER VIII

ĀKĀŚA

1. Some Views Examined

Ākāśa is enumerated as the fifth substance in the standard works of Vaiśeṣika philosophy. The existence of *ākāśa* is established not by the evidence of perception, but by inference. It cannot be an object of perception, for it lacks the quality of colour, which, according to the Vaiśeṣika, is the necessary condition of the external perception of a substance.[1] There are some thinkers, *e.g.*, the Bhāṭṭa Mīmāṃsakas and the grammarian philosophers (*Śābdikas*), who argue that *ākāśa* is directly perceived. They base their conclusion on what they call the unmistakable evidence of experience. We mark the presence or the absence of a flying bird up there. The obvious reference, here, is to a directly perceived locus (*ādhāra*), and this is *ākāśa*. We are thus immediately aware of *ākāśa* everywhere around us as the locus of everything that we perceive.[2] The Vaiśeṣika points out that the locus directly perceived is not *ākāśa*, but an expanse of light (*ālokamaṇḍala*). It is said in reply that the Vaiśeṣika contention is untenable, for the light also is perceived as resting on a locus. The Vaiśeṣika, however, tries to meet the objection by saying that light rests on its components, and not on any locus other than these components.[3]

Ākāśa is believed to be a ubiquitous (*vibhu*) and eternal (*nitya*) substance. It is one (*eka*) individual entity and is not susceptible to division (*akhaṇḍa*). In these respects *ākāśa* is

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[1] KV., p. 106.

[2] *Ibid.*

Also *cf.* *Ādhāraśaktiḥ prathamā sarvasaṃyogināṃ matā* ||
Idam atre 'ti bhāvānām abhāvānāṃ ca kalpate |
vyapadeśas tam ākāśanimittaṃ sampracakṣate ||
Bhartṛhari : *Vākyapadīya* (ed. CSS.), III. v. verses 4-5.

[3] KV., p. 106.

on a par with time and space. Like time and space, *ākāśa* is also a universal locus, a receptacle that holds all finite substances. The Nyāya-Vaiśesika definitely rejects the view that *ākāśa*, time and space represent the different aspects of one fundamental principle. They are, according to him, co-ordinate reals, each having its own distinctive function. No temporal or spatial relation between things can be established through the instrumentality of *ākāśa*.

The distnction between *ākāśa* and space, so seriously insisted upon by the Nyāya-Vaiśesika, is however completely ignored in ordinary parlance and also in some schools of thought. The Jainas, for instance, maintain that *ākāśa* is nothing but empty space (*avakāśa*), since it offers no interference or friction to a moving object. They, in fact, postulate *ākāśa* as the essential condition of free movement (*avagāha*).[5] The Vaibhāṣika Buddhists also appear to hold to an analogous conception. *Ākāśa*, according to them, is an eternal (*asaṃskṛta*) and positive entity (*dharma*), which neither obstructs others nor is obstructed by them.[6] But this also practically amounts to its being a condition of free movement. The Sāṅkhya-Yoga system also considers *ākāśa* to be an all-pervasive real, devoid of impenetrability and functioning as the universal medium in which all finite things exist as separate entities and freely move about.[7]

It appears that there is a general agreement among all these views with regard to the necessity of the postulation of *ākāśa* for explaining the possibility of free movement. These views were known to Kaṇāda and refuted by him. Kaṇāda argues that movement cannot be shown to be in any way due to *ākāśa*, and so it cannot be made a logical ground for inferring *ākāśa* as its condition. *Ākāśa* being ubiquitous is incapable of movement ; it cannot therefore function as the material cause or substratum of movement, which inheres only

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4 NK., p. 22.

5 Umāsvāti : *Tattvārthādhigamasūtra*, V. 18.

6 Yaśomitra : *Abhidharmakośavyākhyā* (ed. Petrograd, 1918), p. 15.

7 Vācaspati Miśra : *Tattvavaiśāradī* on YBh., III. 40.

in a moving object. Nor can *ākāśa* function as the non-material cause, for it is a substance, while, according to the Vaiśeṣika, a non-material cause is either a quality or an action. Movement, in particular, as we have seen, is an event that is initiated by a quality alone. Nor can it be supposed to be in any sense the accessory cause (*nimittakāraṇa*) of movement. In fact, the causality of *ākāśa* with regard to movement could be determined only if it were possible to ascertain its agreement in presence and absence (*anvayavyatireka*) with the latter. But as *ākāśa* is nowhere absent, its agreement in absence (*vyatireka*) with movement or with any event, for the matter of that, is impossible of determination. Any conclusion, therefore, to the effect that movement is impossible in the absence of *ākāśa* is logically inadmissible. The fact is that *ākāśa* has nothing to do with the possibility of movement. A body moves freely only when no tangible object stands in the way, for contact with such an object is supposed to counteract the forces (*viz.*, weight, impulse, etc.) which produce motion. So it is the presence of a material body, and not the absence of *ākāśa,* which is responsible for obstruction to movement. It is apparently a case of slipshod logic to construe movement as the outcome of *ākāśa,* and thus to confound *ākāśa* with the absence of material bodies, *i.e.*, with mere 'unoccupiedness', which is a purely negative concept.[8] That *ākāśa* offers no resistance to a moving object is no doubt admitted in the Nyāya-Vaiśeṣika system also, but that has been explained as due to its intangibility (*sparśaśūnyatva*)—a characteristic which it shares with other substances of unlimited magnitude.[9]

2. Ākāśa and Sound

The conception of *ākāśa* as the substratum of sound is a peculiarly Vaiśeṣika doctrine. The only function of *ākāśa,* on the Vaiśeṣika view, is to afford a substantial basis for the

[8] VS., II. i. 20-23 and VUp. thereon.

[9] NBh., IV. ii. 22.

phenomenon of sound. The part played by *ākāśa* in the scheme of reality is therefore extremely limited. Like the luminiferous ether of the nineteenth-century physicists, it is a purely hypothetical physical entity, filling all space and permeating all matter. The idea of *ākāśa*, like that of ether, has, of course, no foundation in perceptual experience. But *ākāśa* is assumed to exist, because it explains, as nothing else can, the emergence of the quality of sound and the sensation of hearing. If sound could be explained as the quality of some other substance, or, if it could be shown to be a type of substance or a mode of motion, there would be no logical necessity for positing *ākāśa* as a separate substance. Thus we see that the very existence of *ākāśa* depends on the establishment of two conclusions, *viz.*, that sound is a quality, and that it cannot belong to any other recognized substance.

The Mīmāṃsaka of the Bhāṭṭa school maintains that sound is a substance. It cannot be a quality, he argues, for it is perceived independently of a substratum. One of the criteria of quality is that it is perceived invariably as dependent upon a substance. It is only a substance which is independently and directly perceived and which can exist as a self-subsistent real. Thus the criterion of quality being found lacking, and its affinity with substance being clearly observable, it stands to reason, concludes the Mīmāṃsaka, that sound should be held to be a substance.[10]

The Vaiśeṣika rejects the Mīmāṃsā view mainly on the ground that it is based upon unproved assumptions. There is, according to the Vaiśeṣika, no truth in the contention that the perception of a quality is impossible without the perception of its substratum. In fact, there are certain senses which do not perceive substance at all. Our percep-

[10] *Viyadguṇatvaṃ śabdasya kecid ūcur manīṣiṇaḥ |*
pratyakṣādivirodhāt tad Bhaṭṭapādair upekṣitam ||
Tatra guṇasya sarvatra sāśrayatayā pratīyamānatvād iha ca nirāśrayatayai 'va pratītidarśanāt pratyakṣavirodhaḥ . . .'. . . . Śabdo dravyam sattve saty anāśrayatvāt kālavat. MM., p. 91.

tions of physical substances are possible only through the visual or the tactile sense. The olfactory and the gustatory senses can apprehend the qualities of odour and taste, but not the substances in which these qualities inhere. One may, therefore, perceive odour or taste in a substance, even though one may be prevented from perceiving the substance, say, by darkness or blindness. The perception of substance cannot therefore be accepted as the necessary pre-condition of the perception of quality. The Vaiśeṣika also refutes the Mīmāṃsaka's argument that sound could be regarded as a quality only if it were perceivably dependent upon a substratum. The fact is that, though qualities are invariably dependent upon substances as the substrata in which they necessarily inhere, this dependence or inherence is not the exclusive criterion of a quality. Every positive real, unless, of course, it is an eternal substance, is found to inhere in, and so to depend for its very existence upon, some substratum or other. Thus the argument of dependence has no bearing upon the question whether a thing is a quality or a substance.[11]

The texts of the Vaiśeṣika school have advanced a number of arguments in defence of the position that sound is a quality. One such argument, which is given in the *Nyāyalīlāvatī* and substantially reproduced in the *Siddhāntamuktāvalī* is as follows :

Whatever is possessed of a universal (*jātimaḥ*) and is cognizable by some external sense other than the visual sense, is a quality.

Sound is such a thing.

Therefore, sound is a quality.[12]

[11] *Āśritatvaṃ cā 'nyatra nityadravyebhyaḥ.* PPBh., p. 16.
Cf. Āśritatvaṃ guṇatve hi na prayojakam iṣyate |
ṣaṇṇām api padārthānām āśritatvasya sambhavāt||
Dikkālaparamāṇvādinityadravyātirekiṇaḥ |
āśritāḥ ṣaḍ apī 'ṣyante padārthāḥ Kaṇabhojinā ||
NM., pt. I, p. 210

[12] NLV., pp. 274-275; SM., pp. 190-191.

There are two points to be noticed in connection with the major premiss. Firstly, the possession of a universal as a necessary condition of a quality is insisted upon for excluding the sensible universals. On the Nyāya-Vaiśeṣika view, the universals that qualify sensible particulars, *i.e.*, such universals as 'tableness', 'odourness' (common to all odours), etc., are themselves perceivable by the external senses. But these universals are not specific qualities, because they cannot participate in other universals. Secondly, the exclusion of the evidence of the visual sense is also a logical necessity. The visual sense is competent to apprehend a substance, a quality (*e.g.*, colour) and also the movement of a visible body; its evidence is, therefore, indecisive as to whether an object is or is not a quality. The validity of the major premiss cannot be challenged, as it is found to hold good in the cases of odour, taste and touch. In fact, if the condition laid down in the major premiss is not regarded as a criterion of quality, there will be nothing to prove that odour, taste and touch are qualities.

Apart from offering a direct proof in support of the position that sound is a quality, the Vaiśeṣika has sought to clinch the issue by a destructive criticism of the alternative possibilities. Now sound may be a substance or a quality or a physical action, *i.e.*, motion. It cannot, for obvious reasons, be subsumed under any of the other categories.

But sound cannot be identified with motion. Motion is perceived only visually, and that also when it subsists in a visually perceivable substance. The perception of sound, on the contrary, is never visual. The auditory sense alone can apprehend sound.[13] Moreover, according to the Nyāya-Vaiśeṣika writers, the propagation of sound is possible only through a series of sound-productions, the first sound producing a second sound, the second sound producing a third, and so on in the same way as waves are generated in water.[14] But

[13] VS., II. ii. 24.
[14] *Ibid.*, II. ii. 31.

motion is supposed to be incapable of producing another motion.[15] Sound, therefore, cannot be conceived to be a mode of motion. So the only alternatives are that sound can be either a substance, or a quality. We have seen that the Mīmāṃsaka advocates the former position, and the Vaiśeṣika the latter.

The Vaiśeṣika argues : If sound were a substance, it would be either an incomposite entity, or a product composed of parts. It cannot be the latter, because nobody perceives any parts in it. But it cannot be an incomposite substance either, because a substance having no parts, such as an atom, time, space or soul, is not amenable to perception by an external sense.[16] Besides, an incomposite substance being uncaused is eternal, whereas sound is not eternal, as it is found to be produced under specific conditions.[17] So sound transpires to be a product with only one substance as its inherent cause, *i.e.*, as its constitutive substratum. But a substance produced by and inhering in a single substance is inconceivable, since one of the conditions of producton, *viz.*, the conjunction of constitutive factors, which is the *asamavāyikāraṇa*, is lacking.[18] The possibility of sound being a substance is thus eliminated, and the only alternative, *viz.*, that sound is a quality, is left over, which is the Vaiśeṣika position.

We now propose to examine what substance sound can possibly belong to, since a quality can exist only in a substance.

Firstly, let us consider if any one of the four tangible (*sparśavat*) or material substances can function as the substratum of sound. The Vaiśeṣika's argument is that sound differs largely in its nature and behaviour from odour, taste, colour and touch, the four recognized specific qualities of the

[15] *Ibid.*, I. i. 11.
[16] NLV. and NLVK., p. 275.
[17] VS., II. ii. 28 and VUp. thereon.
[18] VS., II. ii. 23.

tangible substances. Any specific quality that may be *perceptibly* present in a material body can only have come into being under the causal influence of a similar specific quality in the components of that body. But although sound is a specific quality, being perceivable by the auditory sense alone, it cannot be said to be produced by another sound belonging to the formative causes of its supposed tangible substratum. Again, the specific quality of a tangible substance is found to last as long as the substance exists. But sonority is only an occasional or accidental characteristic of a sound-producing body. A conch, for instance, is never without its whiteness or hardness, but it emits a sound only when it is blown or dropped down on a hard floor. Moreover, the specific quality of a tangible substance is invariably perceived inside the substance, which is its abiding ground. We must look for the colour or the taste of sugar in sugar itself. The warmth of fire is to be found nowhere outside fire. Odour too is perceived only in and through the particles of earthy matter wafted across by the wind and affecting the nasal membrane. But sound is perceived even in a region where the sound-producing body is absent. One hears, for instance, the report of a gun fired miles off. Sound thus shows peculiarities which cannot be found in the specific qualities of the tangible substances. It must therefore be held to belong to an intangible substance.[19]

We are told that there can be no specific qualities in time, space and mind. Sound, therefore, cannot be connected with any of these intangible substances.[20]

There is a fourth intangible substance, *viz.*, the soul. We should now consider if sound can be a quality of it. The Vaiśeṣika points out that sound is so unlike the recognized qualities of the soul that it cannot be supposed to co-exist with them in a common substratum. The qualities of the soul, *e.g.*, cognition, pleasure, desire, etc., are all psychical in character;

[19] PPBh., p. 58; NK., p. 59; KV., pp. 106-107.

[20] *Ibid.*

they inhere in the soul and are apprehended *internally* through the instrumentality of the mind alone. Sound, on the contrary, is obviously a physical quality, being perceivable by an external sense ; it is perceived externally like colour. Again, the psychical qualities belonging to one soul are not cognized by another, whereas the same sound may be perceived by a number of souls at one and the same time.[21] Further, sound is perceived as detached from the ego (*ahaṅkāra*), but every mental quality is invariably felt as a predicate of the same. Thus one's experience of the mental phenomena is always expressed in the forms, 'I am happy', 'I am aware', and so on. But when one hears a sound, one does not feel or say that one is possessed of it. There is, of course, a reference to the self in such expressions as 'I am a sweet speaker', 'I am a loud speaker', etc. But this, Śrīdhara points out, is due only to the speaker's habit of speech and does not argue that the speaker is the substratum of the spoken sound.[22]

The conclusion is, therefore, irresistible that, as sound cannot belong to any of the eight substances enumerated above, it must have a different substance to serve as its substratum (*āśraya*) and as its inherent cause (*samavāyikāraṇa*). This extra substance is designated by the Vaiśeṣika philosopher as *ākāśa*.

It is necessary here to consider the theory of the phoneticians (Śikṣākāra) and also of some Mīmāṃsakas who hold, like modern physicists, that sound is a quality, or rather a transformation, of air. Sound, according to them, is constituted by the moving air-current obstructed in its path by the impact of tangible objects.[23]

[21] NK., p. 60.

[22] *Ibid.*, p. 61.

[23] *Śikṣāvidas tu pavanātmakam eva śabdam ācakṣate.* NM., pt. I, p. 200

Vāyur eva tālvādisthānasaṃyogāt tattacchabdaguṇako niṣpadyate. *Nyāyaratnākara* on SV., verse 35, p. 738.

But the arguments which have proved the impossibility of referring sound to a tangible substance will also suffice to dismiss this theory as untenable. There are, however, more specific objections to this theory. Firstly, if sound were a quality of air, it would perpetually be present in air, which is its substratum. But, as a matter of fact, air is not invariably found to possess sound, although it is never without the other specific quality, *viz.*, touch.[24] Secondly, the organ of hearing would, on this view, be a modification of air. The principle which determines the nature of sense-organs is this. A sense-organ is competent to perceive a quality which it possesses in itself. There must be a homogeneity of nature between the object and the organ of perception. If this rule were not admitted, any organ would perceive any object, in which case the loss of a particular organ would not be a disability in any way. If the organ of hearing were really a modification of air, it would be competent to perceive both sound and touch. But this would make it impossible for the organ of hearing to be recognized as an external organ. An external organ is *ex hypothesi* a special organ competent to perceive only one specific kind of objects. It is the mind alone which can function as the common organ for the perception of all kinds of objects.[25]

3. The Attributes of Ākāśa

The foregoing discussion has served to establish the existence of *ākāśa* as a matter of logical necessity. It has also been established that *ākāśa* is a substance, as it is the substratum of sound. Sound has been found, on examination, to be a quality, and a specific quality at that, since it belongs to *ākāśa* alone. But sound is not the only quality of *ākāśa*.

We propose here to examine some of the important characteristics of *ākāśa*.

[24] PPBh., p. 58.
[25] KV., p. 108.

There is only one *ākāśa,* so that it is, by its very nature, a unique particular. According to Kaṇāda and Praśastapāda, the oneness of *ākāśa* is proved primarily by the fact that sound is the only logical ground for establishing its existence.[26] Śrīdhara adds that in spite of the possibility of an indefinite number and variety of sounds, the essential identity of sound-phenomena as a class (*viz.,* 'soundhood') points to a common causal substratum.[27] For *ākāśa* is assumed to exist as the locus of sound as such, and not of this, that or any other particular sound. The diversity of sounds according to pitch (*tāratāratarādibheda*) or intensity (*tībramandādibheda*) is thus not inconsistent with the oneness of their substratum and should be explained as due to differences in the auxiliaries (*sahakārivaicitrya*),[28] such as the stuff, size and configuration of the sounding bodies, the force with which these bodies come into contact, and so on.

Ākāśa is a ubiquitous (*vibhu*) substance, for we cannot think of any finite substance that is not in direct contact with it. The ubiquity of *ākāśa* follows also from the consideration that there is no place where sound cannot be produced. In other words, it is possible for sound to be produced anywhere because *ākāśa,* the only originating and sustaining ground of sound, is present everywhere.[29] Again, if *ākāśa* were a finite physical substance, it would exist either as an atom or as a body of composed of parts. But an atom cannot possess a perceptible quality, and a composite body cannot be intangible. *Ākāśa,* on the contrary, is conceived as the intangible substratum of the perceptible quality of sound. A finite magnitude, either infinitesimal or non-infinitesimal, cannot therefore be attributed to it.[30]

The eternity of *ākāśa* follows as a natural consequence from the two previous qualities, *viz.,* unity and ubiquity. If

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[26] VS., II. i. 30; PPBh., p. 58.
[27] NK., p. 62.
[28] VV., p. 329.
[29] NBh. and NV., IV. ii. 21; NK., p. 62.
[30] KV., pp. 111-112.

ākāśa were a non-eternal substance, it would stand in need of a cause for its production. But this cause cannot be the self-same *ākāśa,* because a thing cannot be produced by itself. Nor can another *ākāśa* be supposed to be the cause, because we have found that the postulation of more than one *ākāśa* is unwarranted. Nor can any one of the four material substances be supposed to produce *ākāśa,* for in that case *ākāśa* would be a material body possessing limited magnitude and the specific qualities of its cause. The remaining substances, *viz.,* time, space, mind and soul, are all intangible, and so none of them has the capacity for producing any substance. We cannot therefore assign a cause to the existence of *ākāśa.*[31]

That *ākāśa* is an uncaused and indestructible substance is deduced also from the fact that it is an infinite continuum, and not a finite whole, which is divisible into discrete parts. In fact, there are no parts in *ākāśa,* through the aggregation and separation of which it can be produced and destroyed.

It is a matter of common experience that we cannot produce any change or disturbance in *ākāśa.* Any possible disturbance in the structure of a substance can only result from the displacement (and regrouping) of its parts, due to its imperfect resistance to a tangible, moving object, as we find in the case of water when it is struck with a rod. If, therefore, *ākāśa* shows no such disturbance even when a hard substance is forcibly passed through it, it is because *ākāśa* is itself intangible and incapable of offering any resistance, and is also devoid of any parts (to be displaced and regrouped).[32]

We know that every physical substance (*bhūta*) is the constitutive principle of a particular external sense-organ (*indriyaprakṛti*). *Ākāśa,* the substratum of sound, naturally constitutes the auditory organ. The constitution of a sense-organ is determined by the quality it apprehends. It can apprehend only that quality which is possessed by it. In other

[1] *Ibid.,* pp. 112-113.
[2] NBh., IV. ii. 22.

words, a sense-organ and its object must be homogeneous in nature. If, therefore, the auditory organ alone is competent to apprehend sound, we must suppose that sound is present in it as its specific quality. But *ākāśa* has been shown to be the only substance in which sound inheres. The auditory organ is therefore nothing but *ākāśa* itself. This, however, does not imply that *ākāśa* and the auditory organ are co-extensive, for although *ākāśa* is eternal and all-pervading, sound is not actually heard always and everywhere. The fact is that *ākāśa* can function as the auditory organ only when it is associated with a definite part of the animal organism, *viz.*, the tympanum. The association of *ākāśa* with a particular tympanum, though apparently a simple physical process, is really determined by the operation of moral causes (*dharmādharma*). *Ākāśa* thus cannot serve as the auditory organ unless it is aided by the moral force which requires an individual soul to be provided with that organ in order to fulfil a part of its destiny. The sense-organs are fitted on to the physical organism for the sole purpose of communicating pleasurable and painful experiences to the soul which has to go through them in consequence of its previous *karman*. This explains why the auditory organ, although identical with *ākāśa*, is competent to operate only within a limited range and under specific conditions.[33]

4. The Nature of Sound

Sound, according to the Nyāya-Vaiśeṣika, cannot originate or exist except as a content of *ākāśa*. This, however, does not imply that sound is present in any part of *ākāśa* for all time or in all parts of *ākāśa* at any time. It is, in other words, a transient and non-pervasive quality of an eternal and all-pervasive substance.

While conceding the Nyāya-Vaiśeṣika view that sound is a quality of *ākāśa*, some Mīmāṃsakas of an old school agree with the orthodox Bhāṭṭas in holding that it is an eternal entity. Sound, it is argued, is eternal, because its substratum,

[33] NK., p. 63.

ākāśa, is eternal,—*ākaśa* being at the same time the only substance of which it is a quality. Naturally, on this view, sound does not stand in need of a cause to produce it. It is believed to exist in every part of *ākāśa*, although its presence is not always felt everywhere. Its appreciability or audibility depends on its being revealed by a suitable agency (*vyañjaka*). The auditory sense, being held to be a part of *ākāśa* enclosed in the ear-cavity, is itself the substratum of sound. The sensation of sound is therefore really the apprehension by the auditory sense of its own specific quality. Such sensation is possible, according to the Mīmāṃsakas, only when the air-wave started by the impact of a sonorous body contacts and stimulates the auditory sense and thus brings out its latent sound-quality. The real and immediate revelatory condition of sound is thus supposed by the Mīmāṃsakas to be the air-wave, or rather a peculiar property of it which is technically called *nāda*.[34]

The Nyāya-Vaiśeṣika rejects the Mīmāṃsā position with most of its basic assumptions. The transient character of sound, according to him, is too obvious a fact to be explained away by *a priori* logic. In common parlance, we speak of *making* or *creating* noise, or of *discontinuing* it, and there appears to be no reason to suspect that this language is either deceptive or figurative. As a matter of fact, the only conceivable proof of the existence of sound at any time is its capacity to produce the sensation of hearing. If, therefore, an articulate sound is heard only when it is uttered and not before or after, it is because the sound in question does not exist before or after it is uttered. In other words, every sound has a beginning as well as an end.[35]

We infer the presence of even an unseen speaker from his audible speech-sound. The revelation theory of sound cannot explain how this inference is possible. There is no relation of invariable concomitance (*vyāpti*) between a

[1] NV., II, ii. 12, p. 283.
[1] NS., II. ii. 18; VS. and VUp., II. ii. 26.

revealing agency and the object revealed by it. The existence of a coloured substance, for instance, is possible even in the absence of the light by which it is revealed. If, then, the audible speech-sound is held to function as the logical ground (*liṅga*) of the inference of the existence of a speaker, it is because the very existence of such sound is found to be impossible without a speaker, *i.e.*, a source from which it emanates. Sound thus transpires to be a product, coming into being only under specific conditions.[36]

When a hammer falls on something we hear a sound. The Mīmāṃsaka contends that an eternally present sound is here simply manifested by the impact or blow (*abhighāta*) of one tangible body upon another. But the Nyāya-Vaiśeṣika points out that such a theory would make a sound inaudible except when and where the impact that reveals it occurs, for between an object actually revealed and that which is supposed to reveal it, there cannot be a relation of 'before and after' or of 'here and there'. But when any one is observed at a distance hammering a wall, the sound of the blow will be heard *after* the hammer is seen to fall ; and the interval is greater, the greater the distance between the observer and the hammer. If the distance is very great, the sound will be heard only when the hammer is seen to have already lost contact with the wall—the impact being a sort of instantaneous conjunction between tangible bodies. The Mīmāṃsā theory of the revelation of sound by an impact or blow is therefore untenable.[37] The Nyāya-Vaiśeṣika has adopted what he calls the theory of sound-series (*śabdasantāna*) in order to explain the possibility of the hearing of a distant sound. We shall explain this theory when we discuss the problem of the propagation of sound.

Our sense of hearing tells us whether a sound is of high pitch or low pitch, whether it is loud or faint. Now the different degrees of pitch or intensity cannot be supposed to co-exist in one self-identical sound. We must therefore dis-

[36] VUp., II. ii. 27.
[37] NBh., II. ii. 13.

tinguish various kinds of sounds and explain them by reference to the variety of their conditions of production. Here, again, the Mīmāṃsaka suggests that, although sound is an all-pervading homogeneous entity, it appears as many and diverse on account of the plurality and heterogeneity of the media through which it is revealed. In other words, variations in pitch or intensity really pertain to the sensations of sound and not to sound itself. It is, however, pointed out by Vātsyāyana that the Mīmāṃsaka's hypothesis is inadequate to explain the suppression (*abhibhava*) of a feeble sound by a loud one. We may add that the production of what is called a massive (*mahat*) sound through the coalescence of a number of similar sounds (*sajātīyopacaya*) is equally inexplicable on this hypothesis. In either of these cases, we have to admit the existence of a plurality of audible sounds at the same time and in the same place. It is inconceivable that coresponding to these sounds there should be as many revealing agencies that are synchronous and co-existent.[38]

In all cases of production of sound *ākāśa* is held to be the inherent cause, since sound cannot come into being except as inhering in *ākāśa*. The instrumental or accessory cause (*nimittakāraṇa*) of sound is, however, either conjunction (*saṃyoga*) or disjunction (*vibhāga*). The conjunction that produces sound is of the nature of the impact of one tangible body upon another, such as that of a hammer upon a bell, or of the wind (pressed out of the lungs) upon a vocal organ. The disjunction by which sound is produced is that between the parts of a rigid body, such as is found when a reed is split or a heated glass pane cracks. Sound is also held to be produced by another sound. This third cause of sound is assumed to explain the process that leads to the sensation of sound.[39]

There can be no sensation unless a sense comes into actual contact with its object. The auditory sense, being *ex hypothesi* only a part of *ākāśa*, is, obviously, an immobile thing ; besides,

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[38] *Ibid.*

[39] VS. and VUp., II. ii. 31; NK., p. 289.

it being identical with the part of *ākāśa* enclosed in the ear-hole, its movement towards its object would result in its separation from the ear-hole, in which case it would cease to be the auditory sense. Sound, again, being a quality according to the Nyāya-Vaiśeṣika, is incapable of movement and cannot therefore pass from the sounding body to the auditory sense. How, then, is the possibility of contact between a distant sound and the sense of hearing to be accounted for?

The Nyāya-Vaiśeṣika attempts a solution of the problem on the basis of his theory of *śabdasantāna*. He conceives the emergence of a series of instantaneous sounds, one after another, through successive points in *ākāśa*,—each sound being generated and determined by the one preceding it. The sound-series is initiated by conjunction or disjunction and terminates with the production of a sound in that part of *ākāśa* which constitutes the auditory sense. It is this last sound that is heard, and not any one of those that precede it.[40]

It is a matter of common experience that sound emitted by a body is propagated on all sides. The Nyāya-Vaiśeṣika agrees with the modern physicist in holding that some sort of wave motion passes outwards from the source of sound. The modern theory that air is the medium in which the wave motion takes place seems also to be indirectly and partially accepted by him. For, though sound is held to be the specific quality of *ākāśa* and not of air, it is believed to be capable of existing only in those parts of *ākāśa* which are filled with air-particles. Thus while *ākāśa* is something like a static container or sustainer of sound, air is the mobile vehicle by means of which it is transmitted.[41]

The propagation of sound, which really implies the production of a series of sounds, is sometimes explained on the analogy of waves on a still pond into which a stone is thrown. The disturbance produces a circular wave on the surface of water, and this wave is followed by a second wave, which, in

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40 NV., II. ii. 34, p. 288.

41 *Yāvati gagane pavanasambandhas tāvaty eva śabdo janyate nā 'nyatra.* KV., p. 139.

its turn, is followed by a third, and so on, all radiating from the centre of disturbance. Sound, originating at a particular point in space, is propagated in the same way in all directions.[42]

The wave theory (*vīcitaraṅganyāya*) of sound-transmission is not favoured by Uddyotakara and others. According to them, a sound produced at a particular point in space by conjunction or disjunction gives rise to an infinite number of sounds simultaneously in all directions, and each of these sounds gives rise to another, and the process continues. The result is an infinite number of sound-series starting from a particular point, each series following a rectilinear course in a definite direction. The implication seems to be that sound is propagated in the form of gradually expanding concentric spheres with their centre at its source. The phenomenon of sound-transmission thus very closely resembles the picture of a *kadamba* flower comprising a central ball and filaments shooting forth from it in all directions. When the *kadamba* flower expands in size, it does so in all directions through the accretion of fresh spherical layers, which is effected by the uniform lengthening of all of its numerous filaments.[43]

The wave theory is apparently intended to explain the propagation of sound in expanding concentric circles *only* on *one* plane. The same explanation, however, holds good for all conceivable planes. The sound-waves emanating from a particular centre and spreading uniformly in all directions will, therefore, at any particular time, form an indefinite number of concentric circles with the same radius on an indefinite number of planes, and thus constitute what may be called a hollow sphere. It thus appears that there is no real difference between the two views of sound-propagation. The analogy of the *kadamba* flower simply brings out what is implicit in the wave theory and does by no means contradict or supersede it.

We have so far discussed how sound comes into being and

[42] *Śabdāc ca . . . . vīcisantānavac chabdasantānaḥ*. PPBh., p. 228.

[43] *Ādyaḥ śabdaḥ saṃyogavibhāgāhetukaḥ, tasmāc chabdāntarāṇi kadambagolakanyāyena sarvadikkāni, tebhyaḥ pratyekam ekaikaḥ śabdaḥ . . . . prādurasti*. NV., II. ii. 14, p. 289.

is propagated. We have now to consider how it is destroyed. Sound, according to the Nyāya-Vaiśeṣika, is an extremely transient phenomenon, lasting only for two moments,—the second moment of its existence being associated with the emergence of a fresh sound by which it is itself destroyed at the third moment. The propagation of sound is thus effected by means of a series of gradually emerging sounds, each of whch destroys the one preceding it.[44] But the process of one sound being followed by another, and that by a third, and so on cannot continue *ad infinitum*, for, in that case, a sound arising anywhere would be audible everywhere. Naturally, we have to suppose that a series of sounds reaches its limit at a certain point with the production of a sound which fails to give off another sound and thus represents the last number in the series. This last sound is the only surviving sound in the series, all preceding sounds having already been destroyed, each by the one succeeding it. The question naturally arises: How is this last sound-unit destroyed? Vātsyāyana observes that its destruction is due to the contiguity of a rigid obstacle (*pratighātidravyasaṃyoga*).[45] Vācaspati adds that the last sound arising in a particular part of *ākāśa* is destroyed when the contiguous part of *ākāśa* is blocked by a thick, rigid body (*ghanataradravya*), for any part of *ākāśa* that is so blocked cannot function as the locus of sound.[46] In these statements, there is apparently some sort of explanation as to why the so-called last sound does not produce another sound. The question of the destruction of the last sound is, however, left unsettled. Some later writers of the school suggest that the last sound dies off because of its inherent transiency and that its only difference from any of the preceding sounds lies in its failure to give rise to another sound.

Both Vātsyāyana and Vācaspati seem to suggest that the discontinuity of a sound-series is due to the discontinuity of the medium of its transmission. Sound-waves, we know, are

[44] NBh., II. ii. 35.

[45] *Ibid.*

[46] NVTT., II. ii. 35.

propagated through the medium of air-waves. Of the successive air-waves radiating from a particular centre, that one is the last which meets a rigid obstacle like a thick wall and is thus prevented from giving rise to a fresh wave. Sound, in this case, is not propagated further than that wall and cannot, therefore, be heard even by any one standing just beyond it.

But even when there is no rigid obstacle standing in the way, a sound is not audible beyond a certain distance from its source. Uddyotakara points out that, in the course of propagation, the sounds emerging in succession and constituting a single series show a progressive diminution of intensity (*mandataratamādibhāva*). The series ends when there arises a sound so feeble that even the slightest obstacle can put an end to its capacity for producing a fresh sound.[47] The position may be clearly explained on the basis of the Nyāya-Vaiśeṣika hypothesis that *ākāśa* must contain air-particles if it is to function as the locus of sound. The hypothesis obviously implies that a sound-series propagates itself by means of a series of vibrating air-particles located in *ākāśa*,—each air-particle impacting against the one contiguous to it. The propagation of a sound-series is thus really carried on through the instrumentality of a series of impacts (*abhighāta*). But an impact between two particles is possible only as a result of at least one of them being in motion and possessing what is called the quality of impulse (*vega*), which is something like the force of momentum. Impulse is thus indirectly responsible for the production of sounds. But in the process of propagation through the air-particles, the impulse gradually loses its strength, and sound consequently becomes feebler and feebler. When the impulse ceases, sound also dies off.[48]

[47] NV., II. 14, p. 289.

[48] *Vide* Seal: *The Positive Sciences of the Ancient Hindus*, p. 158.

CHAPTER IX

TIME

1. THE PROOF OF TIME: THE NYĀYA-VAIŚEṢIKA VIEW

The problem of time presents itself under many aspects, no two of which are entirely independent. When, for instance, we proceed to discuss the question, "How is time known?", we at once set to ourselves the associated question, "Why does time make itself knowable in the way in which it is known?" If time exists, it exists to serve a definite purpose in the scheme of reality, and not merely 'in an obscure way', as Aristotle suggests. Any adequate proof of the existence of time must therefore be also a proof of its exclusive capacity to exercise a specific function. Let us examine the position from the Nyāya-Vaiśeṣika standpoint.

Time is conceived in the Nyāya-Vaiśeṣika system as a unique, all-pervading and eternal substance. It is the static background against which events happen and from which they derive their chronological order. It possesses no specific physical quality like colour and thus cannot be an object of external perception. Neither is it perceivable internally, for the mind has no jurisdiction over external or non-psychical objects independently of a physical sense-organ. The question naturally arises: What is the source of our knowledge that time exists? The Vaiśeṣika answers that the knowledge of time is arrived at by a series of inferences. The notions of priority (*paratva*) and posteriority (*aparatva*), of simultaneity (*yaugapadya*) and succession (*ayaugapadya*), and of quickness (*kṣipratva*) and slowness (*ciratva*) constitute the grounds (*liṅga*) of inference of the existence of time.[1]

We propose, first of all, to discuss how time is inferred as the condition of our notions of priority and posteriority. Our initial task in this connection is to determine the exact

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[1] VS., II. ii. 6; PPBh., p. 63.

meanings of these terms. If priority is taken to imply the lapse of a larger amount of time, and posteriority that of a smaller amount, then there will be neither scope nor necessity for the inference of time at all, as the notion of it is involved in that of the logical ground. The Vaiśeṣika has therefore thought it necessary to explain the notions of priority and posteriority independently of reference to time. According to him, priority or posteriority is a quality which every generated substance possesses by virtue of its relation to a relatively large or small number of revolutions of the sun. In other words, when we say that an individual, *A*, is *prior* to another, *B*, which is the same thing as to say that *B* is *posterior* to *A*, we really mean that *A*, a contemporary of *B*, has been connected with a larger number of solar revolutions than *B*.[2]

It is, of course, true that the solar revolutions, through connection with which *A* is perceived as prior and *B* as posterior, are themselves unperceivable. But that does not affect the Vaiśeṣika position. The fact is that solar motion is a well-known phenomenon of nature and is found to be spontaneously presented as a qualifying element (*viśeṣaṇa*) whenever we perceive an individual as prior (*i.e.*, senior) or posterior (*i.e.*, junior) to another. For, if at any time *A* is judged as prior to *B*, the obvious implication is that *A* is felt as having passed through a larger number of days than *B*, and days are intelligible only in terms of complete revolutions of the sun round the earth.[3]

But how can *A* (or *B*, or, for the matter of that, any other individual) be connected at all with solar motion and be qualified by it? No direct connection through the relation of inherence (*samavāya*) is possible between them, as the motion of the sun inheres in the sun and, as such, is connected with it alone. Nor can there be a relation of conjunction (*saṃyoga*)

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[2] NVTT., II. i. 39, p. 280; KV., p. 114.

[3] *Vide* NLVK., p. 284.

The Vaiśeṣika case apparently rests on the old astronomical tradition which assumes that the earth is a static body and that the sun takes one full day to go round it once.

between *A* and the revolving sun, which are widely separated finite substances. But the notion of priority or posteriority, as we have already seen, implies a connection between *A* and solar motion. As direct connection is out of the question, the two terms should be supposed to be related only indirectly through something forming the connecting link. The Vaiśeṣika suggests that the simplest way of explaining this indirect relation would be to suppose that *A* is in conjunction with something, which is in conjunction with the sun in which its motion inheres.[4]

Now, what is this *something* that brings an individual and solar motion into relation? It must be a substance, which alone can be in conjunction both with the individual and with the sun in which its motion inheres. It cannot be a substance of limited magnitude, because such a substance cannot be connected with all things, of which priority and posteriority are found to be determinations. So it must be a substance which is in connection with all finite substaces ; in other words, it must be a ubiquitous substance. But *ākāśa* and the soul, though ubiquitous, cannot serve as the connecting link. It is essential that the required ubiquitous substance should not only be in contact with the individual and the sun, but also have the capacity to relate the individual with the motion of the sun. In other words, it must bring one finite substance into relation with the property of another substance. Neither *ākāśa* nor the soul has this capacity. If *ākāśa* had it, it would be possible for a particular impact, producing sound in one drum, to be transmitted to other drums and to produce sound therein, because *ākāśa* is connected simultaneously with all drums. If, again, the soul, which is in contact with all finite things, were in a position to produce the required relation, substances would be enabled to acquire new properties in a most confusing manner, and the fragrance of sandal would be perceived in gold, and the yellow colour of gold in a white lily. The

[4] The relation is expressed as *svasaṃyuktasaṃyuktasamavāya, i.e.*, inherence (of motion) in a substratum which is in conjunction with something which is in conjunction with the individual in question.

obvious absurdity of the position shows that the mere conjunction of two substances with a third does not ensure any relation between one of the two substances and the property of another. But in the present context, priority and posteriority just imply such a relation. When, therefore, a direct relation is impossible for obvious reasons and when even the two known ubiquitous substances, *ākāśa* and the soul, are found to lack the capacity for producing an indirect relation, there is a clear case, argues the Vaiśeṣika, for positing a special substance which alone can achieve this result. And this special substance is given the name of time.[5]

It may, however, be urged that, if time is supposed to possess the capacity for instituting a relation between the property of one substance and another substance, then there is nothing to prevent it from producing a confusion of qualities in substances—a consequence which has been held out as a bar to the attribution of a similar capacity to *ākāśa* and the soul. Consistency of reasoning demands that time also should be denied this capacity for miracle ; and so the postulation of time is not warranted by an inescapable logical necessity. The answer of the Vaiśeṣika to this objection is that the existence of time as the cause of an indirect relation between solar motion and an individual substance is proved by the *reductio ad absurdum* of the other possible causes. The peculiar capacity of time to produce the relation in question is thus established by the same argument which proves the existence of time itself as an additional substance. Moreover, the capacity is inferred as strictly restricted to the production of an individual's relation with a specific action, *viz.*, solar motion. There is, therefore, no possibility of a promiscuous exchange of properties among substances through the medium of time.[6]

It appears that two alternatives are open to the opponent, *viz.*, either to deny the validity of the considerations which necessitate the assumption of a ubiquitous medium through

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[5] KV., pp. 115-16; NLV., pp. 290-291.

[6] KV., p. 116; KVBh., p. 138.

which solar motion may be related to any individual, or to suppose that some ubiquitous substance other than time may function as the required medium. We have seen that neither of these alternatives is possible. The logical necessity for postulating time as an additional substance, therefore, remains unshaken.

Likewise, the concepts of simultaneity and succession, and of quickness and slowness are the logical grounds for the inference of time. Simultaneity connotes the relation of two (or more) events to a particular solar motion, and succession implies such relation to two (or more) different solar motions. Quickness or slowness of an event is also to be understood as determined by the relation of the event to a smaller or larger number of solar motions.[7] As none of these relations is possible without the intervention of time, the concepts in question constitute the logical ground for the inference of time.

We have seen that the Vaiśeṣika does not believe in the direct intuition of time and is thus under the necessity of proving the existence of time by means of inference. The ground of the inference in question is the notion that solar motion and an individual are related. It has been found that this relation is possible only through a special substantial ubiquitous medium, which is time. Thus it is time that constitutes the relation between solar motion and the individual concerned. When, therefore, we say that *A* is temporally prior to *B*, we are supposed to affrm that *A* is related through the medium of time to a larger number of solar revolutions than *B*. Now the question is: Can this relatedness of *A* or *B* to solar motion be understood without a previous knowledge of the relation? If the knowledge of relation (*sambandhapratīti*) be the *conditio sine qua non* of the knowledge of relatedness (*viśiṣṭapratīti*), then the notion of time should be supposed to be already present as a necessary element of the concept of relatedness. And, if, again, the notion of time *quâ* relation be reached as a conclusion from the premiss of relatedness, there

[7] NVTT., II. i. 39, p. 281; KV., p. 117.

is clearly a case of circular reasoning (*itaretarāśraya*). The knowledge of relatedness presupposes the knowledge of time *quâ* relation, and the latter, again, is shown to presuppose the notion of relatedness as its logical ground.[8]

Udayana however observes, in reply, that the difficulty would be really insuperable if the premiss, *viz.*, that the knowledge of relation is the condition of the knowledge of relatedness, were true. But the fact is that the notion of relatedness presupposes the *existence* of a relation, and *not* its articulate *knowledge*. The terms in relation are directly felt as related, and thus the idea of relatedness arises independently of the knowldege of relation.[9] If this principle were not admitted, some of the common perceptual judgments would be impossible of explanation. In the judgment, for instance, 'Water is cold' or 'Water flows' or 'Water is a substance', the predicate, *viz.*, coldness (quality) or flow (action) or substance-hood (universal), is perceptually related to the subject, *viz.*, water. In other words, water is actually perceived as qualified by what is predicated of it. But the relation subsisting between water and its coldness or flow or substancehood is one of inherence (*samavāya*), which, according to the Vaiśeṣika, is not amenable to perception.[10] It thus follows that the imperceptibility of the relation between two terms does not stand in

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[8] KV., p. 117; KVBh., p. 140.

[9] *Ibid.*

[10] The Vaiśeṣika does not accept the Nyāya view that the relation of inherence is an object of perception. A relation, it is asserted, cannot be perceived unless the terms are perceivable. Inherence accordingly is an unperceivable relation, as it is found to subsist even between admittedly unperceivable terms, such as time and its oneness, or mind and its movement. The fact that perceivable terms (*e.g.*, sugar and its sweetness or whiteness) may also be related by inherence does not affect the position. For inherence, according to the Vaiśeṣika, is a unitary relation; it is the same in all its incidences, whether its terms are perceivable or not. It does not undergo any change in its nature even though the terms may vary from case to case. Inherence, therefore, is bound to remain unperceivable under all possible conditions. *Vide* Din., p. 263 and RR., p. 263.

the way of the perceptual knowledge of the terms as related. A judgment, therefore, affirms or denies, as the case may be, the relatedness of the terms, and not the relation between them. The knowledge of the relation is arrived at by consideration of the impossibility of relatedness in the absence of a factual relation. So the charge of arguing in a vicious circle is based upon a wrong premiss. Time as a fact remains unknown before it is inferred as a relating principle, and it is inferred as a relating principle only when the perceived relatedness of solar motion to an individual cannot be explained in any other way.

The method of inference of time we have discussed so far was suggested for the first time by Vācaspati, and adopted later on by Udayana and other Vaiśeṣika writers. Śrīdhara, however, appears to have realized the futility of any attempt to explain the notions of priority, posteriority, etc. by reference to solar motion. The question of relating solar motion to the temporally determined things presents difficulties which, in his view, are insurmountable. The postulation of an indirect relation through the intervention of a *tertium quid*, and calling this intervening factor time, evidently, did not appeal to him. He, therefore, suggested a different approach to the problem of inference of time. We give here an analysis of his arguments to prove the existence of time.

The notions of priority, posteriority, etc. are determinate subjective phenomena, and their emergence can be explained only on the supposition of their being causally related to a specific objective ground, and this is time. Time, therefore, is to be inferred as the cause of certain notions which are found to be associated with events, and which cannot be explained otherwise.[11]

Time is also presupposed in the operation of the causal principle. An eternal entity like *ākāśa* is uncausable because it is *never non-existent*, which means that it is timelessly existent. An absolute nonentity like a square circle is equally uncausable because it is *ever non-existent*, which means that

[11] NK., p. 64.

it is timelessly non-existent. Causation, therefore, is possible only in the case of an event which is contingent (*kādācitka*), *i.e.*, which comes into being after having been *previously non-existent*. In other words, previous non-existence, which is intelligible only in the sense of a temporally determined non-existence, transpires to be the necessary condition of the production of an event. If, therefore, there were no time, there could be no *happening*, and things would either merely exist or not exist at all. Causality, thus, is found to be inexplicable without reference to time.[12]

The notion of time is also derived from our experience of change. Material bodies, whether inorganic or organic, are found to pass through successive states and modifications. And this can be explained only on the supposition that it is time that makes a difference to the bodies and helps their development or decay. When an old man is seen to possess physical peculiarities different from those of his young son, the contrast inevitably points to a difference in physical change, and time is inferred as the cause of it.[13] In all such cases, the changing substances are supposed to be in direct connection with time, for on no other hypothesis can change be explained.

Vallabha has discussed the orthodox Vaiśeṣika view of time, but has characterized it rather disparagingly as old and conventional (*cirantana*). He offers a proof of time, which, he claims, embodies an original (*abhinava*) approach to the problem.[14] The basis of the notion of time, according to him, is the knowledge that something actually exists. The propositions, 'The table exists', 'The pen exists', 'The book exists', etc., in spite of the variety of their subjects, *uniformly*

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[12] *Ibid.*, p. 65.

[13] *Ibid.* A similar argument occurs in Patañjali's *Mahābhāṣya* (II. ii. 5) where it is stated that it is because of time that bodies are found to undergo quantitative changes (*yena mūrtīnām upacayaś cā 'pacayaś ca lakṣyante sa kālaḥ*).

[14] NLV., p. 293. Vallabha's claim to originality cannot be accepted. He simply elaborated a theory which had been adumbrated by Vātsyāyana. *Vide* NBh., II. i. 41.

convey the idea of something being existent or *present*. These are, therefore, essentially time-propositions. Time, thus, is the invariable determination of any term to which the verb 'to exist' in the present tense may be applicable. 'Existentness' (*vartamānatā*), in other words, implies purely a temporal characteristic.[15]

Vallabha's conclusion is based upon a critical examination and rejection of some of the possible interpretations of the term 'existentness'. The term, he points out, cannot connote what is called isness (*astitva*). 'A thing *is*' implies that the thing has an individuality, *i.e.*, a unique intrinsic nature (*svarūpa*) ; in other words, a thing's isness is the thing itself. Isness has therefore different meanings in different propositions according as the subject varies. Existentness, on the contrary, is found to be predicable in one unequivocal sense of all individually varying reals. Nor can it be contended that 'a thing exists' would mean that the thing participates in the existence-universal (*sattāsāmānya*), for, in that case, existentness could not be predicated of a universal, negation, etc., *i.e.*, of such categories of reality as are, by their very nature, excludent of a universal (*niḥsāmānya*). But there appears to be no ground for dismissing as nonsensical any statement to the effect that a universal *exists* like any particular that participates in it, or that the negation of a thing *exists* wherever and whenever the thing is absent. Nor can existentness be interpreted as the condition in which post-non-existence has not yet occurred and pre-non-existence has already ceased. Since non-existence is intelligible only in relation to a specific negatum (*pratiyogin*), the negation of pre-non-existence and post-non-existence in any particular case cannot refer to anything distinct from the individuality of the negatum itself. But individuality, as we have seen, is a variable concept, while existentness is common to all individuals.[16]

It may be suggested that the existentness of a thing means nothing more than that the thing possesses causal efficiency

[15] NLV., p. 310.

[16] *Ibid.*, pp. 310-311.

(*kriyājananayogyatva*). But causal efficiency is not an indeterminate fact ; it is intelligible only in the sense of the specific capacity of a particular thing to produce a particular effect. Causal efficiency thus transpires to be identical with the intrinsic nature or individuality of the thing of which it is predicated. It is, therefore, bound to vary from individual to individual, so that we have the old difficulty over again. Moreover, it cannot be said that the existent alone can be a cause. For even what is no longer existent and what is yet to be existent are not devoid of causal efficiency. The actually existent is always found to be due to a cause that has ceased to exist. And our present activities are often undertaken with a view to achieving advantages that will follow from the conditions which are not yet existent but which we want to produce through those activities. Thus the attempt to define existentness in terms of causal efficiency results in the obliteration of all distinction between the existent or the present on the one hand, and the past and the future on the other. Nor can any improvement be made upon the situation by defining existentness as the nature of a thing actually associated with an effect (*kāryopahita*). For this would imply that the existent is invariably an active cause—and not merely a potential (*svarūpayogya*) one—a cause which is actually concomitant with the effect brought into being by its activity. The definition serves, no doubt, to eliminate the past and the future, which are obviously not actually associated with the effects they are capable of producing. But it fails to represent the true nature of existentness, which is found to be independent of any reference to association with an effect. Our perception of a mass of gold or a lump of clay, for instance, as something which *exists*, is not dependent upon the knowledge of the effect, say a jar, which is produced from it.[17]

It appears that the existentness of a thing cannot be explained by reference to its intrinsic nature, causal or non-causal. Existentness, which is the same thing as presentness,

[17] *Ibid.*, pp. 311-312; also NLVK., p. 312.

should therefore be understood as an extrinsic determination, and this determination is called time. Time, like the relation of inherence, is one and self-identical in all its countless incidences. The diversity of individuals qualified by it does not introduce any diversity into its nature, since existentness is felt as common to all of them.[18]

2. Is Perception of Time Possible?

The Bhāṭṭa Mīmāṃsaka maintains that time is an object of perception. If time were not immediately given in experience, such characteristics of events as slowness, quickness, coexistence, succession, etc. would never come within our perception. Since these perceived determinations of events necessarily involve a direct reference to time, it must be held, argues the Mīmāṃsaka, that time is invariably presented as a qualifying element (*viśeṣaṇa*) in our perception of events.[19] The attempt of the Vaiśeṣika to explain away these obvious time-determinations by reference to solar motion is not faithful to the plain verdict of experience.[20] In fact, the necessary accompaniment of the notion of time with all our perceptions can be explained satisfactorily only on the hypothesis that time itself is directly perceived. There is no validity in the contention that time is not amenable to perception because it lacks sensible colour (*udbhūtarūpa*). Such a contention is an example of the fallacy of universalizing a rule which is found to be true in a limited field. In fact, it is a matter of accident that some perceptual data possess sensible colour and others do not. The Vaiśeṣika himself has to admit that the quality of colour (*rūpa*), though devoid of colour, is visually perceived, and that atoms are infra-sensible in spite of the presence of colour in them.[21] The fact is that a law must be in harmony with facts ; it cannot

[18] NLV., p. 312.

[19] NM., pt. I, p. 124; *Nyāyaratnākara* on SV., *Śabdanityatādhikaraṇa*, verse 303; MM., p. 79.

[20] The criticism does not evidently apply to Śrīdhara's method of inference of time.

[21] NM., pt. I, p. 124.

contradict or supersede them. The perception of time in spite of its colourlessness is a fact of experience and cannot therefore be invalidated by any law. So the Mīmāṃsaka concludes that time is always a perceived determination of the empirical data. It is, of course, true that time is not perceived by itself, independently of a concrete filling. But that does not prove its imperceptibility. For time, by its very nature, is perceivable only as a qualification of a sensible object. If nothing can be perceived except in time, time also cannot be perceived if it is 'devoid of all sensible content'.[22]

It may be observed here that Nāgeśa, the grammarian philosopher, also holds that a span of time is perceivable by all the six sense-organs (*ṣaḍindriyavedya*).[23] An object is felt as *present* when it is *presented* to the senses. In other words, our normal perception of an object is invariably associated with the conviction of its presentness, which is, obviously, a time-determination.[24] Nāgeśa, therefore, concludes that an object can be *presented* to an appropriate sense only as a *present* event, and that the time-determination of the event is as much an object of sense-perception as the event itself.

From what has been said above, it will be clear that the Mīmāṃsaka anticipates and utilizes the substance of Kant's argument in so far as it can be employed to show that the notion of time is not arrived at by a process of ratiocination. The Kantian view that "only on the presupposition of time can we represent to ourselves a number of things existing at one and the same time (simultaneously) or at different times (successively)", seems to be in some measure a reaffirmation of the Mīmāṃsā position. It must, however, be noted that the agreement between the two views does not go beyond the admission of the *givenness* of time as a necessary element in all our experience. The Mīmāṃsaka, like the Nyāya-Vaiśeṣika, is a thorough-going realist and believes in the *objective* existence

[22] SD., p. 139; NM., pt. I, p. 124.
[23] VSLM., p. 849.
[24] *Kuñjikā* on VSLM., p. 850.

of time, which Kant denies. Time, according to Kant, is neither an actually existing substance nor an objective determination of such a substance ; it is only one of the forms of intuition. It is not a thing experienced, but, as a subjective condition of all our experience, it is given *a priori*. In itself and apart from the subject, time is nothing at all. The Mīmāṃsaka realist does not accept this position. He is emphatic in his assertion that time is a substantive real existing in its own right. He does not believe that the subjectivity of time necessarily follows from the apodictic certainty of the dictum that things cannot be known except in time. As a matter of fact, the acceptance of the dictum is not incompatible with the objective reality of time. It cannot be denied that time is invariably presented as a real and objective determination (*viśeṣaṇa*) of events perceived by us.[25] To take one element in the perceptual act, *viz.*, time, as a subjective form, and the other, *viz.*, the event, as an objective fact, is certainly to misrepresent the contents of perception. In fact, Kant himself admits the empirical reality or objectivity of time in relation to all objects that are capable of being presented to our senses. But here also Kant seems to be inconsistent ; for he says that time is pure (non-sensuous) intuition and makes sensuous perception the test of empirical reality. It is inconceivable that a pure form of intuition should have anything to do with sensuous perception.

As regards the Mīmāṃsaka's position that time is a perceptual datum, the Vaiśeṣika maintains that it is untenable, inasmuch as it fails to recognize the limitations of perception as a source of knowledge. The time that is supposed to be immediately perceived is limited. The specious present, or, for the matter of that, any directly perceived time-division, has a fairly well-defined span.[26] But time *per se*, which is the object of philosophical speculation, is infinite and eternal. Such time is never an object of perception. Again, simultaneity and

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[25] NM., pt. I, p. 124.

[26] *Idānīm ityādyakhilavyavahārāṇāṃ khaṇḍakālamātraviṣayatvāt.* *Kalā* on VSLM., p. 851.

succession, and also priority and posteriority, as perceived determinations of events, refer only to the arrangement and relatedness of those events in the "time-setting". What we are immediately aware of in these cases is not time as it really is, but certain extrinsically determined temporal modes as adjuncts to events. But real metaphysical time is a unitary, infinite, undivided whole. It would exist even if all events were abstracted from it ; it transcends all its empirical delimitation and diversification. It never comes within our sensuous experience. We can only infer its existence as the common objective ground of all the perceived temporal qualities of events. It is natural, therefore, that the Vaiśeṣika should refuse to take the apparent *primâ facie* verdict of perceptual experience at its face value, with regard to time.

Śrīdhara, however, has pointed out that time, though unperceivable, can enter as a qualifying element into a perceptual judgment, *e.g.*, 'I see the table *now*'. Here time, which is known originally through a process of inference, is found to be associated with a perceived object as a qualification (*viśeṣaṇa*) of it. There is no psychological absurdity in such an association, for it is the same subject that infers time and perceives the temporally qualified object. A similar association between unpresented and presented elements is admitted in the case of the perceptual judgment, 'I see a fragrant rose'. Here a rose actually presented to the visual sense is apprehended as qualified by the fragrance previously experienced in another rose with the olfactory sense.[27] So it comes to this. Though the knowledge of time as such is always inferential, the association of the time-quality with perceived objects partakes, to all appearances, of the character of perception. The argument of succession, simultaneity, etc., employed to prove the objective reality of time, has its necessity and utility with regard to an opponent who elects to repudiate time as an objective fact.[28]

[27] NK., p. 65.
[28] *Ibid.*

3. THE REALITY OF TIME AND ITS DETERMINATIONS

Empirically we speak of three times—past, present and future—rather than of one. The Vaiśeṣika points out that in this threefold time we see its derivative nature. All three depend on the existence of something else. Let us examine how it is so.

Time, according to the Vaiśesika, is really one infinite and indivisible principle. The empirical divisions of time into past present and future cannot therefore be natural or integral to it. If the divisions of time were natural and therefore real parts in it, each of them would be numerically and essentially different from the others ; so that a definite span of time which is now cognized as present would never be divested of its intrinsic character of presentness and therefore could not be cognized as future before or as past afterwards. Nor can it be contended that a unitary time can possess the three determinations—pastness, presentness and futurity—as its original qualities. The determinations are obviously contradictory and incompatible. Besides, their coincidence would make all temporal distinctions impossible. In other words, there would be no bar to an event being cognized as past as well as future just when it is actually cognized as present.[29] The Vaiśeṣika naturally concludes that time acquires these distinctions from its relation to something outside the time-series. To be precise, the Vaiśeṣika asserts that the distinctions of time are derived from its association with the limiting adjuncts (*upādhi*) in the form of generated events (actions or objects), which are necessarily of finite duration.[30] Thus, although functioning as the universal substratum of all that *is*, so that whatever exists must be in it, time, by itself, is independent of all events happening in it. But time as present is dependent upon its relation to an event which has begun but not yet ended. Similarly, the past is the time associated with an event that has passed off, and the future is the time associated with an event that is yet to come to

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[29] KKK., p. 1234 and KKKV., p. 1235.

[30] *Janyamātrm kālopādhiḥ.*

pass.[31] Dissociated from all these concrete events which act as limiting adjuncts, time would transcend its limited, measurable aspects and be eternity.

But, if time *per se* cannot possess the distinctions of past, present and future, and if these distinctions are valid only relatively, are we to suppose that they do not really exist as such? And, if so, would such a position be consistent with a realistic view of time, such as the Nyāya-Vaiśeṣika maintains? We are thus inevitably confronted with the traditional problem of the reality of time.

The doctrine of the unreality of time has found powerful exponents in India as well as in the West. It has taken different forms with different philosophers and has naturally been supported by widely divergent arguments. We are, however, concerned here, for obvious reasons, only with those arguments which directly attack the Nyāya-Vaiśeṣika conception of the basis of the distinctions of past, present and future.

The most outstanding critic of the Nyāya-Vaiśeṣika theory of time is, of course, Śrīharṣa. His objection to the reality of time rests on the assumption that the temporal determinations are indefinable and unintelligible as separate entities. To define a thing is to mark it off from others ; not to be able to define a thing is to admit that it has no recognizable specific character, which means that it is not real.

The Vaiśeṣika suggests that the past, present and future are distinguishable from one another by means of the different external conditions, *i.e.*, different solar motions, which determine them. But this, according to Śrīharṣa, is an untenable position, for all the three determinations of time are found to stand precisely in the same relation to the same solar motion. A particular day, for instance, which is cognized as present owing to its relation to a particular solar motion, is also cognized

[31] KV., pp. 120-121.

Cf. "If nothing were passing away, there would be no past time; and if nothing were coming, there would be nò time to come; and if nothing were, there should now be no present time." Augustine: *The Confessions*, ix. 14.

as past and future by reference to that very motion. The day in question is understood as present on that very day, as past on the days that follow and as future on the days that precede. It is marked off from its predecessors and successors by the particular solar motion with which it is associated and which is common to all its determinations—past, present and future. But it is an obviously absurd position that relation to one particular external fact should be supposed to be the condition of the three determinations of time which are felt as distinct from one another. It may be said in defence that the difficulty is due to the absence of a necessary qualification in respect of the relation. We have the notion of the present when the time of an event is in *actual* relation to solar motion. When the relation in question *has been* and *is no more*, we have the notion of the past ; and of the future, when the relation *will be* but *is not yet*. But this defence, argues Śrīharṣa, only glosses over the difficulty. For the term 'actual' means 'existent', which is the same thing as present ; and 'has been' and 'will be' are mere synonyms of past and future.[32]

It has, again, been suggested by the Vaiśeṣika that the time determined by action (*kriyāvacchinna*) is present, and the time determined by the pre-non-existence of action is past, and the time determined by the post-non-existence or cessation of action is future. But this explanation also does not effect any improvement upon the previous position. All divisions of time are equally determined by action and thus turn out to be present alike. For there can be no time-division which is qualified by the pre-non-existence or post-non-existence of some action, and not qualified any action.[33] There is a further difficulty. Pre-non-existence and post-non-existence are unintelligible without reference to the notions of the previous and the subsequent. But the previous is the past, and the subsequent is the future. The Vaiśeṣika is thus involved in a vicious circle, for the terms which he uses for explaining time-determinations are found to imply them.

[32] KKK., pp. 1235-1236; KKKS., p. 672.

[33] KKK., p. 1238.

The Vaiśeṣika proposes an amended definition of the present in the following terms: The time which is determined by a particular action is present in relation to that action and not to any other.[34] But this also does not solve the difficulty, for it is the same determining action that is found to qualify the present as well as the past and the future. Any moment of time which is regarded as present by virtue of its relation to a particular action is also recognized as past and future by reference to that very action. It may seem easy to get round the difficulty by supposing that determination (*avaccheda*) by the action concerned is not present in the past and the future ; that is to say, such determination is present only in the present when the action is actually in progress.[35] But this simply seeks to define the present time by means of a present action when the meaning of the term 'present' is itself unknown. There is no escape from the difficulty even if it is asserted that the time which is determined by a particular action is present *at* the time of that action. For how can time be the receptacle of time when only one time-continuum is admitted? And, again, if time is one, there is no sense in saying that it can be its own receptacle.[36]

An argument which is similar in some respects, but which obviously had a different basis, was offered by McTaggart. Presentness, pastness and futurity, he points out, are contradictory and therefore incompatible characteristics, and yet every event has them all. We can escape the contradiction only by supposing that an event can have them not simultaneously, but in succession. The event *was* future, *is* present and *will be* past. But 'was', 'is' and 'will be' are equivalent to past, present and future. We are thus involved in a vicious circle, for to explain time-distinctions we use the different tenses which are themselves unintelligible without reference to time-distinctions.[37]

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[34] *Yatkriyāvacchinno yaḥ kālaḥ sa tatkriyāpekṣayā vartamāno na tv' anyāpekṣayā. Ibid.*, p. 1241.

[35] KKKV., p. 1243.

[36] KKK., p. 1241.

[37] McTaggart : *The Nature of Existence*, vol. ii, pp. 21-22.

The very conception of one infinite time appearing as diverse and finite through relation to the movement of an external body, is, according to Śrīharṣa, open to grave objection. It makes the time-determinations—past, present and future—relative and subjective. No external condition can be universally valid. There is neither fixity nor finality in it. Sometimes a moment may be said to be present, sometimes an hour, a day, a month, a year, and so on. If these distinctions are made dependent upon external circumstances of varying finite durations, no universal or objective standard of the present, or, for the matter of that, of any time-determination, can be propounded. This is certainly a bar to the clear and rational understanding of a time-determination as an objectively real fact.[38]

We do not find any attempt, on the part of the writers of the Nyāya-Vaiśeṣika school, to meet the criticisms of Śrīharṣa. We may however offer a few remarks of our own on this matter. The results of Śrīharṣa's arguments may be summed up as follows: There is no definition of a time-determination that can stand critical examination; no time-determination is therefore intelligible as a distinct entity. The Nayāya-Vaiśeṣika realist may accept the substantive proposition without committing himself to the consequential one. The definitions of the past, present and future may not be logically perfect, but even the most unbending sceptic cannot deny that they serve to distinguish them from one another with a fair degree of accuracy. The definitions may at least be accepted as unambiguous descriptions of time-determinations. The truth of the matter appears to be that the present is an object of immediate intuition about which there is no room for mistake or confusion. The existence of the present is directly indicated by the time-judgments forced upon us by our experiences. We may not be able to define a time-determination, but that does not prove that it lacks a recognizable individual nature. When Śrīharsa shows that the Vaiśeṣika's definitions of the present are applicable to the past and the future as well, he seems to have the conviction that the present

[38] KKK., p. 1244.

cannot be and should not be confounded with the past and the future. His repudiation of the definitions would have no sense if he were not himself conscious of the distinctive identity of the present as compared with that of the past or the future. It cannot, therefore, be suggested with any pretence to plausibility that our time-notions are unintelligible to ourselves.

The sceptic may argue that he does not seek to disprove this psychological possibility of our time-notions or their practical value. What he seeks to assert is that the concept of time is not logically justifiable, and so cannot have ultimate validity. Time as an empirical concept with its empirical validity may pass muster in our ordinary intellectual activities. But that is no guarantee of its absolute validity. Even unreal things and demonstrably false notions may hold good at a certain level of our intellectual development, and in a certain sphere of activity. So these pragmatic arguments cannot shake the conclusions reached by the rigorous pursuit of logical necessity.

In reply to this defence of the sceptic, the realist may with all propriety urge that the distinction between the empirical (*vyāvahārika*) and the transcendental (*pāramārthika*) is not an established fact ; nor is it necessitated by the demand for systematization of our experience. However, this is a very broad problem, and so far as the vindication of the reality of time is concerned, it is not necessary to enter upon a discussion of the issue. There is, however, no reason why the pragmatic value of the time-judgments should be discounted. The analogy of false beliefs having pragmatic justification is entirely irrelevant to the problem at hand. The popular belief in the movement of the sun may not lead to any untoward consequence in the plane of ordinary activity. But with the growth of knowledge of the planetary system as embodied in astronomy, the belief is found to come into conflict with the larger field of knowledge. So it has to be rejected. But the fundamental concept of time stands in a different position. We cannot conceive of any intellectual advancement, except in abstract speculations, which demands the rejection of time.

Absolute time is maintained by the Nyāya-Vaiśeṣika realist to be an infinite, ever-present continuant, which is not affected by the variations of time-determinations. The plurality of time-determinations, as we have seen, is not integral to time *per se*. Being an eternal entity, it exists even when all empirical determinations may cease to hold the field. These determinations are admittedly relative, and though they do not have the same degree of reality as possessed by infinite time, they are not unreal appearances, according to the Nyāya-Vaiśeṣika philosopher. The difference is that one is eternal and undetermined, and the others are transitory and determined by relation. The criticisms of Śrīharṣa do not therefore affect real metaphysical time. Even granting that time is not knowable apart from the three finite determinations, the unity and infinitude of time are not affected thereby. The fact is that these determinations are not *of* time, though they are *in* time; they really belong to events which are in time and not to time itself. The unreality of time would not therefore follow even if these determinations were inconceivable and unreal, as Śrīharṣa suggests they are.

4. The Atomic View of Time

Vyāsa, the author of the *Yogabhāṣya*, does not favour the Nyāya-Vaiśeṣika view of time as an infinite continuum. Time, according to him, has no real existence apart from an uninterrupted succession of atomic 'moments' (*kṣaṇa*). The moment is not a mere abstraction or logical figment. It is not to be conceived as an incalculably small quantum of time taken out of infinite duration. Nor is it to be understood as a mere determination of time dependent upon relation to an external limiting condition (*upādhi*), as is held by the Vaiśeṣika. The moment is an independent entity; it is defined as the absolute and irreducible unit of time; it is the measure of the minimal positional change in nature, *i.e.*, of the movement of an atom from its own position to the next.

It is essential to the nature of moments that they should arise, one after another, in uninterrupted succession. Each

moment can exist only by superseding the one preceding it. Two moments cannot co-exist. It is not possible for moments to be *actually* strung together in a linear arrangement, for when one of them is, others are not. The continuity of time should therefore be explained in terms of an *ideal* series of moments. It is the intellect which pieces together the moments—the existent present, and the non-existent past and future—and thus constructs the empircal divisions of time of various lengths. Every moment, being immediately subsequent to the one that has just passed off and being also the only moment at the time of its existence, is necessarily the present moment. This is the only one moment that is actual, since it represents a single unit of actual change which the whole material order undergoes. The past and the future moments are non-existent as independent entities, though they form part of changing matter.[39]

The Yoga view of time found an enthusiastic supporter in the grammarian philosopher Nāgeśa.[40] It is interesting to note that he did not fall in line with his great predecessors, Patañjali and Bharttṛhari, so far as the concept of time is concerned. He quotes them on many occasions, but interprets them in his own way. He refers, for instance, to Pantañjali's statement that the present time is real though imperceptible, and takes the statement to imply that time has no reality apart from the imperceptible atomic present.

The Vaiśeṣika definitely rejects the view that the continuity of time, whether finite or infinite, is only a convenient fiction derived from a conceptual fusion of 'real' moments. Nothing can be less like our consciousness of time than a fictitious series of moments ; nor does our perceptual experience know anything of moments of a mathematical sort.[41] This, however, does not imply that the moment itself is an absolute nonentity from the Vaiśeṣika standpoint. The moment as an indivisible unit of

[39] YBh., III. 52.

[40] VSLM., p. 840.

[41] NKu., pt. II, p. 5; TC., vol. I, p. 380.

time is admitted as a fact both by the Pātañjala and by the Vaiśeṣika. But, as we have seen already, the former holds the moment to be an absolute entity, whereas the latter regards it as a relative concept.

Now the question arises: What, according to the Vaiśeṣika, is that external condition in relation to which time comes to acquire this specific limitation? The Vaiśeṣika is not a fluxist; he does not believe in discrete, momentary reals. Motion, or cognition or any other fact has, according to him, a certain duration and is thus incapable of functioning as the required term of reference (*upādhi*). It seems therefore necessary to postulate a new category (*padārtha*) to make the notion of the moment possible, and this category should be held to be a momentary entity different from all known facts.[42]

But the Vaiśeṣika asserts that there is no proof either for the existence of an objectively independent moment or for that of a momentary entity. The perceptual judgment, 'The jar exists for many *moments*', cannot be trotted out as the proof of the objectivity of the moment. The judgment cannot be supposed to refer to an objective moment, since the moment expires immediately after its contact with a sense-organ and is not synchronous with the perceptual knowledge. Nor can the existence of a moment be proved by inference, as there can be no probans. But, then, what is the basis of our use of the term 'moment'? The answer is given that it is a particular sort of cognition. But a cognition is determined by a datum. What can be the datum here? Vallabha maintains that the datum is a particular motion *and* the pre-non-existence of the disjunction (*vibhāgaprāgabhāva*) caused by it as the determinant (*upādhi*) of that motion. But as each of them has a definite duration, neither the one nor the other can be the datum in isolation. The two as *related* constitute the datum of such a cognition. But what makes them related? Vallabha answers that the cognition which apprehends the motion and the pre-non-existence of disjunction *together*, serves as the connecting

[42] NLV., p. 21; *Setu*, p. 73.

link. And as such a cognition does not arise except when its own conditions are fulfilled, the datum of this cognition must be a unique fact called moment.[43] It thus appears that we cannot directly arrive at the notion of a moment. We get at it only as a single piece of information referring to the last phase of a cause and the initial phase of its effect, held together in a temporal relation. Objectively, therefore, the moment is defined by Udayana as the point of time that intervenes between the presence of the full complement of causal factors (*sāmagrī*) and the emergence of the effect.[44]

The philosophical significance of this discussion lies in its emphasis upon the fact that time is a unitary, indivisible principle, and the distinctions of time as moment, hour and the like are only due to pragmatic requirements. The crucial problem of time relates to its unity and plurality. The unity is forced upon us by a logical necessity, and the plurality is a matter of common experience. The Nyāya-Vaiśeṣika does not think it possible to explain away the unity as an ideal construction derived from the different time-determinations. The distinctions of time are held to be external determinations of the unitary time. The denial of the independent reality of the moment as the minimal unit of time, and the explanation of the notion of the moment by reference to a combination of facts, by themselves non-momentary, bring this position into focus.

5. The Nature and Status of the Present

In the *Nyāyasūtra*, the triple determination of time is accepted as objectively real. The problem is raised in connection with the criticism of a view which holds the past and the future as the only real time-determinations and repudiates the existence of the present.[45]

[43] NLV., pp. 42-48.

[44] KV., p. 118.

[45] This view, however, cannot at present be affiliated to any school of philosophy. In the days of the *Nyāyasūtra* and of the *Mahābhāṣya* there seems to have been in existence a class of thinkers who denied the present. These thinkers might have been Buddhists, as some are

The argument for the repudiation of the present is as follows: The divisions of time, which are always understood as durations, may be explained on the basis of their relation to spatial divisions or the parts of the path of a moving body. Let us take, for example, the case of a fruit falling from a tree after getting detached from its stalk. At any stage of its gradual descent towards the ground, the fruit, while passing through a particular position, may be said to have already traversed a certain distance. This distance, *i.e.*, the whole interval between the stalk and the fruit, is the space traversed (*patitādhvan*), and the time associated with it is the time passed through, *i.e.*, the past. The untraversed interval between the fruit and the ground is the space yet to be traversed (*patitavyādhvan*), and the time associated with it is the time yet to be passed through, *i.e.*, the future. In between these two spaces, there is no space which the fruit may be perceived as actually traversing. There is, therefore, nothing to which the present time may be assigned. So the present does not exist.[46] It is only an imaginary point of demarcation at which the future flows into the past.

The Naiyāyika criticizes this view on the ground that the future and the past are understandable only in relation to the present, and if the present were non-existent, the past and the future would be *a fortiori* non-existent.[47]

It appears that the case for the rejection of the present rests on the assumption that time is intelligible in terms of spatial divisions. But, as a matter of fact, there can be no

inclined to think; but there is no conclusive evidence in favour of such a supposition, for the *Kathāvatthu* and other earlier Buddhist works testify to divergent opinions among the Buddhist sects on the three denominations of time. Some modern scholars are of opinion that the view criticized in the *Nyāyasūtra* represents Nāgārjuna's position. This is evidently wrong, for according to Nāgārjuna, the past, present and future are equally unreal, whereas the view under consideration is that of a realist who believes in the reality of the past and future, though not of the present.

[46] NS., II. i. 39 and NBh. thereon.

[47] NS., II. i. 40.

spatial representation of time. For the distinctions of time are not co-existent, while an unchangeable object like space can have, if at all, none but static and co-existent parts in it. Time should accordingly be supposed to be revealed through some changeable phenomenon—a phenomenon which comes into being after having been non-existent and which passes off after having existed. Such a phenomenon is action. Vātsyāyana, therefore, maintains that it is not in space but in action that we must look for the manifestation of time.[48] Action is invariably characterized by a time-quality, for every action is an event in time. When an action has ceased, it is regarded as an event of the past. When an action is yet to be, it is regarded as an event of the future. When an action is perceived as going on, it is regarded as an event of the present. The present is thus the time when an action is perceived as actually subsisting in a substance.

It may be argued by the opponent that a real action—a process of going on—can never be perceived, and so the present does not exist. Vātsyāyana replies that if the past and the future are to be saved, the existence of the present cannot be denied. For if an action were not perceivable even when it is in relation with a substance, there would be no way left to the knowledge of the past and the future. The past is that time-division in which the relation concerned has ceased, and the future is that in which the relation is yet to be produced. So the past and the future are both devoid of the action that marks the present. Or, to be precise, the substance under consideration is actually possessed of action in the present, and destitute of it in the past and the future. Thus time is understood only in terms of action. The present is pre-eminently related to the action, and the past and the future are determined by the negative relation in which they stand to that action. In other words, an action determines the present by its actual presence, the future by its previous absence, and the past by its sub-

[48] *Nā 'dhvavyañgyaḥ kālaḥ, kin tarhi, kriyāvyañgyaḥ.*
NBh., II. i. 40.

sequent absence. It is thus only on the basis of an action actually perceived as present that we can judge its previous absence as a real possibility and its subsequent absence as a real cessation, as opposed to mere non-existence in both the cases. Unless we know that an action *is* at some time—and we can know it only when it *is*—we cannot say of it at any time that it *will be* but is not yet, or that it *has been* and is no more. There can therefore be no future and past if there be no present.[49]

The only way in which the present may be dispensed with is to declare that the past and the future represent antithetical determinations of time which are associated and contrasted with each other in the act of judgment and are thus understood only in relation to each other. But this offers no satisfactory explanation as to the precise manner in which the past can be determined with reference to the future, or *vice versa,* in the absence of the present. The analogy of such relative concepts as 'long' and 'short' or 'top' and 'bottom', which are supposed to be mutually determined, cannot establish the relativity of past and future. A point can be established only on the basis of a valid logical ground. Mere analogy has no cogency. If analogy were a sufficient argument, the conclusion could be shown the other way about. In a flower, for instance, colour and odour are found to be mutually associated without being dependent for their existence upon each other. This may be the case with past and future also.[50] The fact, however, is that even the concepts of 'long' and 'short' or 'top' and 'bottom' are not purely mutually determined. Something is 'long' or 'short' in relation to a constant or standard of measurement. The 'top' and the 'bottom' are understandable only by reference to the body of which they are parts.[51] Further, mutual dependence is only an argument for the unreality of the terms concerned. If one term is dependent upon another, and the latter, again, upon the former, for their very existence, neither of them will be

[49] *Ibid.*

[50] *Ibid.*, II. i. 41.

[51] NVṬT., II. i. 40, p. 282.

real. So the positing of the past and the future as real time-determinations in the absence of the present is devoid of logic.[52]

We have already seen that, according to Vātsyāyana, the present as a time-determination is manifested directly by an actual action, *i.e.*, by an action *going on*. He does not, however, think that the present is manifested by action alone. There are things which may or may not possess action; there are also things which cannot possess action. But they all exist, and they are present only by existing. The present is thus manifested not only by action but also by the existence of all things.[53] Substance exists; quality exists; action exists. The very existence of these things, which implies their presence or presentness, proves the existence of the present. If there were no present time, the propositions would carry no meaning. The consequence would be an unrelieved blank of negation. So the reality of the present cannot be repudiated without being involved in unmitigated nihilism.

Besides, the denial of the present time would rule out the very possibility of knowledge in any form. The perception of an object presupposes sense-object contact, and such contact is possible only if the object is existent (*sat*) or present, *i.e.*, has the same temporal locus as the cognizing subject.[54] It may be contended againt this view that even a past or a future event is seen to be the object of supernormal intuition (*alaukika-pratyakṣa*) of the seer (*yogin*), and so the presentness of an object cannot be insisted upon as the condition of its presentedness. That the temporal determination of the object has nothing to do with the possibility of its being perceived, is admitted by both Uddyotakara and Vācaspati. But they maintain that perception itself being an event (*kārya*) must have a temporal locus, which can only be the present time.[55] For the time in which an event occurs is said to be present in relation to that event. It thus follows that there could be

[52] NBh., II. i. 41.

[53] *Arthasadbhāvavyaṅgyaś cā 'yaṃ vartamānaḥ kālaḥ. Ibid.*

[54] *Ibid.*, II. i. 42.

[55] NV., II. i. 42, p. 257; NVTT., II. i. 42, p. 283.

no perception if there were no present time. And from the impossibility of perception would follow the impossibility of inference and verbal knowledge, since these presuppose perceptual knowledge as their source and foundation.[56]

We have seen that, according to Vātsyāyana, there are two ways in which the present may be manifested. There are accordingly two different modes of the present—one, absolute; and the other, relative.

The absolute mode of the present is perceived as unassociated with the past and the future. It is manifested by the continuous self-existence of substances.[57] The existent is necessarily the present in an absolute sense, even when it forms the subject of judgments that refer to the past and the future. According to Viśvanātha, the time-determinations in such cases, strictly speaking, relate to the qualities of the existing substance so far as they are liable to change under the impact of a continuous action. Thus it is said of one and the same jar, in spite of its continued existence *quâ* jar, that it *was* black in the past (before baking) and that it *will be* red in the future (after baking). We do nothing more than follow the linguistic convention when, on seeing a jar as red, we say that it *has ceased to be* a black jar, and when, on seeing a jar as black, we say that it *is yet to come into being* as a red jar. In strict logic, however, the time-determinations are to be understood as predicated of different qualities or actions, and not of the substance. The substance persists throughout and thus never ceases to be present.[58]

The relative mode of the present is perceived as associated with the past and the future and is manifested by the continuity of action, *i.e.*, by an uninterrupted series of actions (*kriyā-santāna*).[59] Vātsyāyana explains the position by reference to the act of cooking (*pāka*). A person is said to be cooking food until the food-stuff reaches a particular stage desired by him.

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[56] NBh., II. i. 42.
[57] *Ibid.*, II. i. 43.
[58] NSVr., II. i. 43.
[59] NBh., II. i. 43.

The act of cooking, even when it is spoken of as present, consists, in reality, of an uninterrupted series of diverse operations, of which only one is present, some are past and others future, if judged by reference to a watch. They are, however, viewed as constituting a single progressive action in the present time and expressed by a single verb-form in the present tense (*viz.*, *pacati*), since they are held together within one span by a single ultimate purpose (*ekaprayojanāvacchinna*)[60]. The present, therefore, must have a certain duration, but the duration cannot be objectively or independently fixed. It is determined by continuous action and is therefore relative to the interest and standpoint of an active subject. This accounts for the variations of the length of the present for different people. These variations, however, being necessitated by purely pragmatic considerations, can only be provisional and do not affect the absolute mode of the present.

Time, according to the Nyāya-Vaiśeṣika, is an ever-present entity, and thus all empirical determinations of time in their intrinsic nature cannot but partake of the character of presentness. Even the past and the future are not entirely independent of or unassociated with the present. The cessation of action which determines the past is a fact of the present time ; so also is the pre-non-existence of action which determines the future. It is, of course, true that in ordinary parlance an event is said to be past when it is no more present, or future when it is not yet present. In either case, the event has no position in what is called the 'specious present'. But this does not imply that the event is not related to the ever-present entity which is known as time. In fact, the past, the future and even the 'specious present' are externally conditioned specific determinations that can arise and pass off and qualify events only on the background of the infinitely extended Present. An object must be related to the Present, *i.e.* to time, if it is to be cognized as something that is or was or will be. As has been shown by Vātsyāyana and Vallabha, the very existence

[60] NBh., II. i. 42-43.

of a thing presupposes its relation to time ; and as its existence is maintained intact even in the midst of all the changes that happen to its determinations, its connection with time never ceases. Time, as *Eternal Now,* therefore, transcends all its empirical determinations. The truth of the conclusion is borne out by the fact that the present is found to be the determination of even the eternal verities, although the past and the future are not predicable of them.

CHAPTER X

SPACE

1. The Nature and Proof of Space

Space is ordinarily looked upon as something like a receptacle into which all physical things are somehow put and in which they occupy different places. But the Vaiśeṣika would regard this as a very incomplete and misleading picture. For, if space were nothing more than a mere container, its only function would be to provide every finite object with a place or locus (*deśa*) to subsist in. But in that case it would have no necessity of existing as an entity separate from *ākāśa*, which, as we know, besides being the inherent cause of sound, is the substratum of all finite things.[1]

The Vaiśeṣika regards space as essentially a relating principle. We are told by Kaṇāda that it is because of space that of two simultaneously existing bodies one is perceived as before or behind another.[2] Space, in other words, is that which sets up certain positional relations among co-existent bodies. It is substantial, infinite and continuous. If space accommodates discrete objects, it does so only to arrange them in a definite order, so that the position of each of them is definable only by reference to that of others.

The Vaiśeṣika as a realist conceives space as an objective reality, existing in itself independently of experience. But its independence of experience does by no means imply that it cannot be an object of experience at all, or that it is given *a priori* as a necessary form of perception, which is the view of Kant.

Some Naiyāyikas maintain that space, like time, is an object of perception ; it is intuited through our perceptions of

[1] NK., p. 22.
[2] VS., II. ii. 10.

east, west and the like.[3] The Mīmāṃsakas also hold that space is immediately apprehended through the auditory sense as a qualification (*viśeṣaṇa*) of sound.[4] No sound is perceived without a local colouring. That is, whenever a sound is heard, it is felt as coming from a particular direction and from a point of space at a particular distance ; and direction and distance are nothing but space attributes.[5]

The Vaiśeṣika objects to this view of the Naiyāyikas and the Mīmāṃsakas, and his arguments are exactly those that he employs in refuting the perceptibility of time. We have discussed some of these arguments in the preceding chapter and need not go into them again. The Vaiśeṣika thinks that what is described as the perception of space is really the perception of finite things bearing certain space relations to one another. Of space, apart from bodies which are in space, our perceptual experience tells us nothing.

Since, according to the Vaiśeṣika, space is not a subjective phenomenon, it cannot be perceived internally by the mind alone. Again, though an objective reality, it cannot be perceived externally, as it lacks sensible colour and gross magnitude. Space, therefore, according to the Vaiśeṣika, is knowable only by a process of inference.

It appears, from what has been said above, that we cannot start with empty space and then fill it with bodies. We should rather start with bodies, which we perceive, and then examine if they possess any characteristics which it would be impossible for them to possess if there were no space. The Vaiśeṣika obviously recognizes this principle when he asserts that the notions of positional priority (*paratva*) and posteriority (*aparatva*) arising in respect of bodies constitute the logical ground (*liṅga*) of the inference of space.[6]

[3] . . . . *pūrvāparādipratyayagamyā dig api pratyakṣā.* NM., pt. I, p. 125.

[4] . . . . *rave gṛhyamāṇe tadviśeṣaṇatayā dig api gṛhyate* . . . . SD., p. 139.

[5] *Vide* J. N. Sinha : *Indian Psychology,* pp. 141-144.

[6] . . . . *paratvāparatvaliṅgatvaṃ diśaḥ.* KV., p. 122.

Priority implies comparative remoteness, and posteriority comparative nearness. These are qualities of bodies which are determined by relative distance. Thus one body can be judged as prior or posterior to another only when the distance between each of them and a constant point of reference has been ascertained. Now distance is a matter of perception. It is what is perceived as keeping bodies apart, though not unrelated. Except for it, all perceptual things would have to coalesce or interpenetrate. But what is it that really *constitutes* distance? It cannot be a slice of space; if it were, it would not be amenable to perception. And, on the contrary, if distance as a slice of space were a perceivable datum, there would be no necessity of proving the existence of space by inference. The Vaiśeṣika, therefore, suggests that distance should be understood in terms of the number of conjunctions of bodies, and not as a slice or stretch of space. When there are two bodies, *M* and *N*, existing simultaneously and occupying positions in the same direction from an observer,[7] represented by *O*, he immediately perceives that one of the two bodies is remoter from (or nearer to) him than another. Now the distance between *O* on the one hand, and *M* or *N* on the other is measured by the number of conjunctions of the bodies that exist in between them. *O* is conjoined to the next body, *a*, which is the place (*bhūpradeśa*) on which *O* stands; *a* is conjoined to next body (or place-unit), *b*; and similarly *b* to *c*, *c* to *d*, and so on till *M* is reached. Then, again, *M* is conjoined to the next body, *p*, which is the ground on which *M* is placed; and, as before, *p* is conjoined to the next body (or place-unit), *q*, and *q* to *r*, and so on till *N* is reached. Now, it is the number of intervening bodies or rather of their conjunctions that constitutes remoteness or nearness according as the number is greater or less in relation to a fixed point of reference, which is furnished in the above case by *O*. Since, in the above series starting from *O*, the place of *M* is before

[7] The two bodies are required to be in the same direction from the observer, since relative distance can be most directly perceived only when the observer and the bodies are placed in the same straight line.

that of *N*, the number of conjunctions between *O* and *N* is greater than that between *O* and *M*, and so *N* is judged as comparatively remote from, and *M* as comparatively proximate to, *O*. This results in the emergence of the qualities of priority and posteriority in *N* and *M* respectively.[8] Now, *O* is directly conjoined to the next term, *i.e.*, to *a*, and not to *M* or *N*. So there exists a series of conjunctions between *O* and *M*, and also between *O* and *N*. But as conjunction is an intransitive relation,[9] *N* cannot be supposed to be in conjunction with, or related in any other way to, *M* or *O*. But they are felt to be related, as otherwise *N* cannot be spoken of as positionally prior to *M*, or *M* as posterior to *N*. What makes this relation possible? According to the Vaiśeṣika, it is space which brings the two terms into relation. Both *N* and *M* are in conjunction with space, and thus with each other through the mediation of space. Space, therefore, is that which turns the relation of conjunction into a transitive relation (*paramparāsambandha-ghaṭaka*) by virtue of its special efficiency. It is regarded as a distinct substance, as its function cannot be exercised by any other known substance.

According to Praśastapāda and other classical writers, our perception of directions as east, west, etc. is another independent proof of the existence of space.[10] On closer analysis, however, the directions are resolvable into cases of positional priority and posteriority. The perception of east or west, for instance, is not that of empty (*nirupādhi*) space, but of material bodies in their relative positions.[11] Neither any part of space nor any object in it can be independently or absolutely determined as

[8] PPBh., p. 164; NK., p. 168; VUp., II. ii. 10.

[9] The intransitive character of the relation of conjunction may be shown by a concrete example. Take the case of a man who has a cap on his head and who is seated on a chair which rests on the floor of a room. It would obviously be absurd to assert that the man's cap is on the chair or the floor, for the conjunction of the cap is only with the man's head.

[10] PPBh., p. 66; NLV., pp. 218-220; TaS., p. 12.

[11] NK., p. 67.

lying in the east or the west or any other direction. When, therefore, *A* is said to be to the east of *B* (or *B* to the west of *A*), it is understood that the distance between *B* and the point of horizon touched by the rising sun, which we call *Z*, is greater than the distance between *A* and the latter.[12] In other words, *A* is to the east of *B* (or *B* to the west of *A*), because *B* is prior to *A* (or *A* posterior to *B*) in relation to the rising sun or the point *Z* touched by it. As we have already seen, the priority of *B* to *A* (or the posteriority of *A* to *B*) implies a positional relation between *A* and *B*, which is derived from the relation of both of them to *Z*. But *Z* and *A* and *B* are widely separated finite things. Their distances from one another can, of course, be understood in terms of the number of conjunctions of intervening bodies ; but they cannot be brought into relation by such conjunctions. The conjunction of the sun is with *Z*, and that of *Z* or *A* or *B* with the contiguous bodies. The relation between *A* and *B*, which is based upon a relation between each of them and *Z*, and which is the pre-condition of the notion of direction as east or west, cannot be established except through the intervention of what is called space.

That the function of space as the instituter of a relation of conjunction (*saṃyogopanāyaka*) between two otherwise unrelated terms cannot be usurped by any other substance, will be obvious if we examine the character of the space determinations as east, west, etc. The determinations do not relate to space *per se*, which is an undetermined (*anupādhi*) entity, and unamenable to perception at that. They can have relation only to concrete substances which are the contents of space. Thus when *A* is said to be to the east of *B*, to the south of *C*, to the west of *D*, to the north of *E*, and so on, these determinations are predicated of *A*. But the logical predication does not imply that they are intrinsic and integral to *A*. If *M* is substituted for *A*, it will have exactly the same determinations in relation to the same terms. Again, in relation to other terms, or even to the same terms with their positions altered, *A* will have

[12] NVTT., p. 460; NLVP., pp. 295-396.

quite different determinations predicated of it. So there is nothing in the unique individual nature (*svarūpa*) of any finite substance which can account for its obviously many and variable spatial determinations. These, therefore, must be supposed to be adventitious and due to relation to something else.[13] This *something* must be such a substance as can set up a relation of conjunction between unrelated bodies and thus give rise to the notions of east, west, etc. in respect of them. It must be an all-pervading substance, for any finite substance, material or non-material, cannot be expected to be in conjunction with all the terms which are the possible subjects of the aforesaid spatial determinations. The substance in quesiton cannot be time which has been shown to have a precisely definite function, *viz.*, that of instituting a relation between solar motion and temporally qualified events. In the foregoing chapter, it has been shown that *ākāśa* and the soul, though all-pervading and thus in conjunction with all finite substances, are devoid of the capacity to produce any relation between unrelated terms. Thus by the process of elimination we arrive at the notion of space as a distinct substance with a specific function.[14]

An attempt has been made by Citsukha to show that there is no necessity of assuming the existence of space for explaining the notions of priority and posteriority. Space, according to the Vaiśeṣika, is that which brings about between two unrelated terms that kind of positional relation which gives rise to the idea of one of them being prior or posterior to another. But Citsukha's contention is that this function can very well be exercised even by a measuring rod of a fixed length. The rod may be so placed as to touch the spot of ground on which an observer stands as well as the two bodies observed by him ; or, if it is not long enough, it may be placed repeatedly in a straight line, so that it may touch all the three. The rod, thus, will also be in conjunction with the whole ground between any two of these terms. To be precise, the

[13] KVBh., p. 147.
[14] KV., pp. 123-124; NLV., pp. 298-300.

rod will have a series of conjunctions with all the intervening bodies or place-units between the observer and each of the observed bodies, and the number of conjunctions in one case will obviously be greater than in another. Thus will be established a positional relation between the two bodies, independently of the mediation of space.[15]

The position sought to be established by Citsukha cannot, however, stand critical examination. The argument that distance between bodies can be ascertained by means of a standard of measurement contains a *petitio principii.* It is taken for granted that a rod of a definite length is an ultimate unit of measurement. But this is an unwarranted assumption. The measuring rod consists of a multiplicity of parts, each conjoined to the next. So, on analysis, the unit of measurement is found to be reduced to a series of conjunctions between parts mutually exclusive and unrelated, as conjunction is an intransitive relation. So, for the unification of the multiplicity of conjunctions it is necessary to postulate the existence of an entity which can bring the otherwise unconjoined parts together into relation and thus make a unit out of the multiple factors. Although the measuring rod is a whole and therefore a unit, the unit *quâ* whole cannot be functionally identical with a unit of measurement. This will be apparent from a consideration of the process of the formation of a whole from its parts. A plurality of parts as factors of a whole cannot give rise to a whole by directly and simultaneously coming into conjunction with one another. Two parts are first conjoined and produce a minimal whole. The latter, again, in conjunction with another minimal whole produces a bigger whole, and so on until we reach a relatively completed whole. The whole is thus not directly related to the ultimate constituents by way of either inherence or conjunction. Only the parts of each of the minimal whole are directly conjoined, and after that the rela-

[15] *Dikkalpanām antareṇai 'va vyavahāraḥ svena saṃyukta-pṛthivyādibhir hastadaṇḍādisaṃyogānām alpīyastvabhūyastvābhyām eva viśiṣṭaparāparavyavahāropapatteḥ.* Cit., pp. 325-326.

tion of conjunction subsists between one whole and another, and not between the parts of these wholes. As a unit of measurement, the unity of the whole as explained is absolutely of no avail. What is required is a unit of distance which consists of a series of conjunctions of mutually exclusive parts, and this can be made possible only by space, as has been shown above. Citsukha thus assumes the very existence of space in substituting a standard of measurement for space.

2. Some Characteristics of Priority and Posteriority

It is important to realize that, according to the Vaiśeṣika, the existence of space is inferred from the notions of priority and posteriority, and not directly from those of mere remoteness and nearness. A body acquires the quality of priority by being remoter, and the quality of posteriority by being nearer, than a certain point, with reference to an observer. These, therefore, are not the original qualities of a thing, but are generated by relations. They are relational qualities. Two conditions, thus, appear to be necessary for the emergence of either of them—one subjective, and the other objective. The subjective condition is a relating intellection (*apekṣābuddhi*) on the part of the observer—the cognition of one body being remote or near compared to another. The objective condition is the actual conjunction of the body with a remote or neighbouring point of space. The former is regarded as the accessory cause (*nimittakāraṇa*), and the latter as the non-material cause (*asamavāyikāraṇa*), the material cause (*samavāyikāraṇa*) being the body in which priority or posteriority as an objective quality arises and abides.[16]

The necessity of postulating priority or posteriority as a distinct space attribute of bodies is, however, sometimes questioned. It is contended that priority or posteriority is nothing but the state of being at a great or small distance from a point. That is to say, the prior is that which is remote, and the posterior is that which is near.

[16] NK., p. 168; KV., p. 251.

The Vaiśeṣika criticizes this view. Remoteness or nearness, Vardhamāna urges, is a relation of conjunction (*i.e.*, a relation through an intervening conjunction-series) between two terms, and, as such, it appertains equally to both the terms. Priority or posteriority, on the contrary, is a quality which, in a particular context, is predicable of a single individual entity, and is therefore not a relation. It is, strictly speaking, a relational quality, but a quality none the less.[17] Again, remoteness or nearness, being a relation between two terms, is independent of reference to a limit, *i.e.*, to a term other than those of which remoteness or nearness is predicated. But priority or posteriority is a relative concept like fatherhood, which is understood only in relation to an independent term of reference, *i.e.*, to a term which is not prior or posterior.[18] Let us try to make the distinction clear by an example. Take the case of a man observing a tree. He is related to the tree spatially by just as many intervening conjunctions as those by which the tree is related to him. If the tree is remote from him, he is also remote from it. If the tree is near him, he also near it. But this does not imply that if the tree is prior or posterior, the observer is also prior or posterior. For, although it is legitimate to describe the tree as prior or posterior to something, with reference to him, the observer cannot be characterized as prior or posterior to anything, with reference to the tree.

But why should the observer be supposed to be incapable of possessing the quality of priority or posteriority? Udayana seeks to explain the position by an appeal to the peculiar causal nature of the conditions which produce this quality. The conditions are held to be capable of exerting causality in a specific way ; they can produce priority or posteriority in the cognized object (*prameya*), and not in the cognizing subject (*pramātṛ*)[19]. But the explanation is hardly convincing. The fact of the matter

[17] *Paratvāder ekavṛttitayā pratīter vyāsajyavṛttisaṃyogād bhedāt.* *Prakāśa* on KV. (ed. STS.), p. 124.

[18] *Ibid.*

[19] *Kāraṇaśaktiniyamād eva tanniyamopapatteḥ . . . . saṃyogālpatvabahutvāviśeṣe 'pi prameya eva paratvāparatve na pramātari.* KV., p. 250.

is that the priority or posteriority of a body, say, of the tree in the instance cited above, is dependent partly on a subjective condition, *viz.*, the observer's *impression* that the tree is remote or near compared to another observed body. It is therefore necessary that the observer should regard himself as the term of reference, from which he can estimate the relative distance of each of the observed bodies. But the observer cannot be held to be prior or posterior, since, for obvious reasons, he cannot be expected to judge the relative remoteness or nearness of his own position with reference to himself. Nor can the tree function as the necessary term of reference, since it cannot provide the subjective condition so essential to the production of priority or posteriority.

We have seen, in the preceding chapter, that the notion of priority or posteriority constitutes the logical ground of the inference of time as well. As a time quality, priority or posteriority implies the condition of having come into being earlier or later than a certain event. Earlier or later origin, by itself, is not however a criterion of priority or posteriority. Asoka, therefore, cannot be said to be prior and Akbar posterior in the technical sense. A generated substance (*i.e.*, an event), say *A*, comes to be invested with the quality of priority or posteriority only when certain conditions are fulfilled, *viz.*, firstly, that *A* exists simultaneously with another generated substance, say *B* ; secondly, that, on the basis of certain unmistakable physical characteristics, *A* is *judged* by an observer as remote (old) or near (recent) compared to *B* ; and thirdly, that *A* is in actual conjunction with a comparatively remote or near point of time (*i.e.*, a point of time separated from the observer by a comparatively large or small number of revolutions of the sun).[20]

There are thus two varieties of priority and posteriority, *viz.*, spatial and temporal. Both these varieties are found to come into being under more or less similar conditions, and to this extent they are alike. They are however clearly distinguishable from each other.[1]

[1] NK., p. 169; KV., p. 251.

Temporal priority or posteriority is not predicable of eternal substances, since no one of them can precede or succeed another. But there is no bar to an eternal substance being spatially prior or posterior, provided it is of finite magnitude. One atom can be said to be before or behind another in a spatial sense, though there cannot be any chronological relation between the two. Thus, as a time quality, priority or posteriority may belong to any generated substance, while, as a space quality, it may belong to any finite substance, whether generated or not.[21] Since all generated substances are necessarily finite and since there are some finite substances which are eternal (*e.g.*, atoms and minds), the scope of the spatial determinations is in a way more comprehensive than that of the temporal. Again, even among co-existent bodies, to which both temporal and spatial determinations are equally applicable, what is prior in time may be posterior in space, and *vice versa.* When, for instance, there is an old man seated very near an observer and a young man not so near him, the former is characterized as temporally prior (*i.e.*, remote) but spatially posterior (*i.e.*, near), whereas the latter is characterized as temporally posterior but spatially prior.[22] Moreover, temporal priority and posteriority point to a constant and unalterable relation between two terms. If *A* is ever earlier or later than *B*, it is always so. But the determinations of space are variable. If *A* is spatially prior to *B* at one time, *B* can be spatially prior to *A* at another time, the change in the positional relation between *A* and *B* being effected by a change in the position of either or both of them, or of the term of reference.[23] So the determinations of space as prior and posterior should be distinguished from the corresponding determinations of time, and accordingly the condition of the former cannot be the condition

[21] *Cf.* the dictum—*Janyamātropādhiḥ kālaḥ, mūrtamātropādhir dik.*

[22] *Kālato 'pare 'pi dikkṛtaparatvam, kālataḥ pare ca dikkṛtam aparatvam.* NP., p. 325.

[23] *Niyatopādhyunnāyakaḥ kālaḥ, aniyatopādhyunnāyikā dik.* VUp., II. ii. 10.

of the latter. This makes the postulation of space in contradistinction to time a matter of logical necessity.

3. Some Attributes of Space

Space, like time, is a substance, since it possesses qualities. The qualities of space, as those of time, are infinite extension, numerical unity, separateness, conjunction and disjunction.[24]

Space is an all-pervading (*vibhu*) substance. For, wherever bodies are, they are in a sort of arrangement, which can result only from their space relations to one another. In other words, bodies may have the qualities of priority and posteriority anywhere because space is everywhere. Space is accordingly of infinite magnitude (*paramamahatparimāṇa*).[25] There is no absolute maximum of space extension. Infinite space, however, *appears* as finite through its relation to the finite bodies which it contains. Any limit that we set to space is therefore only a convenient fiction necessitated by purely pragmatic considerations.

Space is eternal, since it is an incomposite substance and does not depend on anything for its existence.[26] There are no parts of space, through the aggregation and separation of which it can be produced or destroyed. Space is thus marked by absolute continuity (*akhaṇḍatva*); there can be no gaps in it. When, therefore, we speak of discrete portions of space, we do not represent space as it really is, but deal with it in an artificial manner for achieving some theoretic or practical end.

There is only *one* space ; it is the only thing of its kind. It would therefore be wrong to suppose that corresponding to our ideas of directions as east, west, south, north, etc.—ten in all—there are ten different spaces. It would be equally wrong to explain the concept of a unitary space by reference to a space-universal inhering in individual spaces.[27] The fact is, as we have explained already, that the distinctions of east, west,

[24] PPBh., p. 67.
[25] NK., p. 68.
[26] VUp., II. ii. 11.
[27] NLVP., p. 301.

etc. appertain to bodies by virtue of their relative positions in space, and not to space itself. When these distinctions are predicated of space, that should be understood as mere extension to space, of the qualities of bodies which are in space. In fact, the postulation of a multiplicity of spaces gives rise to difficulties which are insuperable. If, for instance, the east represented a space different from the west, south, and so on, there could be no common entity to bring these spaces into mutual relation. But this would make the determinations of space unintelligible. For the east is understood only in relation to and as contrasted with the west. It may, of course, be supposed that they are mutually independent concepts occasioned by independent spaces. But such a hypothesis offers no solution to the problem of relating different bodies by means of space. Each body is found to have a number of spatial relations predicated of it at one and the same time, which means that it is simultaneously related to different bodies. It is only if the bodies exist in *one* space that they can be so related, and their relative position can be understood.[28] One body existing in one space and another body existing in another space can have no ground of comparison and thus no relation. The difficulty of a body being simultaneously related to different bodies in different spaces cannot be got over even by supposing that it is in relation with all spaces, and through them with all the contents of each space. For space being *ex hypothesi* ubiquitous, there can be no material body that is not in it. In other words, all material bodies should, on this hypothesis, be believed to be contained as much in one space (say, the east) as in any other (say, the west or the south). Every object in this world would thus be regarded as having the same particular positional relation to all other things, a consequence which is obviously absurd.[29] It is not, therefore, a question of logical economy (*lāghava*) but also of logical necessity, involving absurdities, which makes the postulation of *one* space

[28] NK., p. 68.
[29] *Ibid.*

unavoidable. The considerations set forth here apply with equal force to time also. The world would be reduced to a chaos if space and time did not function as cementing bonds, and a plurality of spaces as also of times inevitably leads to this unthinkable consequence.

Space, according to the Vaiśeṣika, is the common accessory cause (*nimittakāraṇa*) of all products. So it is on a par with time. Space and time are thus the universal conditions of the production of all events, mental as well as physical.[30] This may strike a modern student of philosophy as quaint and unusual in view of the general acceptance of the Kantian position that space is the condition of external perception only. In Kant's system, time is given a decided primacy over space, as the former is accorded jurisdiction over the mental plane also, access to which is denied to the latter.[31] The Vaiśeṣika, however, puts space on a footing of equality with time by making both of them the universal conditions not of perception only but of all events. The immediate material cause of any particular event—a generated substance, quality or action—may be this or that substance, but space and time are the ultimate substrata (*ādhāra*) in which the substance in question is found to have its being and exercise its causal function. Space and time, being thus inseparably associated with the cause of an effect, are indispensable conditions for the production of that effect. Besides, that an event happens at a particular time and place and not at any other, can be explained only by pointing out that its cause operates in a definite spatio-temporal context. The particular place and time to which the cause is necessarily related thus constitute the condition of production just as much as the intrinsic character of the cause.[32]

Thus the Vaiśeṣika, though insisting on the causal character of space, holds that space can be the cause of an event only by being its locus. As Vallabha says, all pro-

[30] *Dikkālayoḥ . . . . . sarvotpattimatāṃ nimittakāraṇatvam.* PPBh., p. 25.

[31] Watson : *The Philosophy of Kant*, p. 32.

[32] NK., p. 25; KV., pp. 38-39.

ducts are necessarily conditioned by an all-pervading universal locus which is devoid of any specific quality (*viśeṣaguṇa*), physical or non-physical. It is true that *ākāśa* is the originating ground of its own specific quality of sound ; and similarly the soul, of its own specific quality of cognition. But this does not imply that sound and cognition are not causally related to that universal locus which possesses no specific quality and which is called space. If *ākāśa* is the special inherent cause of sound, and the soul of cognition, space (like time) is the common (*sādhāraṇa*) locative cause of both sound and cognition, and of all other products.[33]

33 NLV., pp. 307-308.

CHAPTER XI

WHOLE AND PART

1. The Whole as Distinct from its Parts: The Psychological Defence

In our examination of the Nyāya-Vaiśeṣika theory of the constitution of matter we had to speak of parts forming wholes —of imperceptible atoms composing perceptible bodies. The question naturally arises: What is the status of a material composite, *i.e.*, of a body, in relation to its constituents? Is it merely an aggregate of its parts, or is it something more than that? The Sāṅkhyas, the Mīmāṃsakas and the Buddhist realists are at one in their finding that the whole as such is *non est,* that it is nothing but parts existing together. The philosophers of the Nyāya-Vaiśeṣika school take the opposite view. According to them, the production of the sensible material order from infra-sensible atoms is explainable only on the basis of the assumption that a whole is different from its parts. Our task in this chapter is to examine the validity of the Nyāya-Vaiśeṣika position, and to study, incidentally, the arguments that are usually advanced against it.

In the Nyāya texts[1] we come across the elaboration of a rather peculiar epistemological theory which holds that all cases of perception of external objects are at their bottom nothing but inference. However paradoxical it may sound at first, the truth of the contention, it is maintained, will be apparent from the scrutiny of the content of the perception of any ordinary physical thing, say a tree. To be perceived by an external sense, a thing must possess gross magnitude (*mahattva*) or extension. This means that the thing must be composed of parts, for a simple, incomposite thing can have no sensible or measurable extension. If, therefore, a tree is to be an object of visual perception, it appears necessary that all the component

[1] *Vide* NS., II. i. 30, and NBh. and NV. thereon.

parts of the tree should be seen at one and the same time. But it is impossible for anybody to perceive all the parts of a tree at a glance, for his visual sense can come into contact with only that part of the tree which lies just in front of him. So, since perception is necessarily confined to the presented data alone, it can never succeed in delivering the knowledge of the tree, or, for the matter of that, of any physical thing. Thus such knowledge of a gross object as is usually declared to be perceptual in character must be supposed to be really reached by an act of inference.

We do not know who is the original promulgator of this view, but we find it criticized rather elaborately by every important writer of the Nyāya school. The criticism rests mainly on the consideration of the relation of a thing to its parts, since it is from the perception of one or more of these parts that the thing as a whole is supposed to be inferred.

A gross physical thing—a tree, for instance—may be regarded either as an aggregate of its parts (*avayavasamūha*), or as a complex whole (*avayavin*) which, though composed of parts, is different from each and all of them (*dravyāntara*). But neither of these alternatives fits in with the theory that the act of cognizing a thing is necessarily an act of inference.

Let us consider the first hypothesis in some detail. Since, according to it, a thing has no existence apart from that of its parts, and since any part which is perceived cannot be inferred at the same time, the only possible object of inference is the part which is not perceived. The unperceived part of a thing thus turns out to be identical with the thing itself. But this is plainly absurd. We cannot have the notion of a tree in respect of any particular part of it. A thing is held to be an aggregate of *all* its parts—perceived and unperceived. The unperceived part cannot therefore take the place of a thing any more than the perceived part.[2]

To obviate the absurdity noted above, some thinkers have proposed a somewhat different interpretation of the theory.

[2] NV., II. i. 30, p. 210.

According to them, this is what happens when a person, on perceiving a part of the surface of a tree, jumps to the conclusion that he sees the whole tree, though a part is not the whole. Since there is a relation of togetherness between the parts of a tree, the front and the back, when the front part is perceived, there necessarily arises an idea—a sort of inferential knowledge —of the back part which obviously lies outside the visual field. Then follows an ideational conjunction or synthesis of the two parts—one presented and the other represented—which eventually results in the emegrence of the notion of a tree as a whole comprising these parts. 'Seeing' a tree is thus found to be a kind of inferential knowledge, involving as it does a passage of thought from the perceived to the unperceived.[3]

But even this explanation, it is pointed out by the Naiyāyika, does not succeed in saving the theory. For even if the inference of the unperceived part were possible, that would at best provide us with the knowledge of another part side by side with the perceived one, and not with the knowledge of anything to which these parts might be referred and in respect of which the notion of a tree might arise. Since neither of the two parts of a tree is the tree, the knowledge of either or both of them is not the knowledge of the tree. We obtain this knowledge, it is contended, by effecting a synthesis of the two parts. But how could such synthesis be possible when there is no common ground and point of reference? Synthesis implies the connecting of several experiences by reference to one unitive principle.[4] But no unitive principle is admitted by the opponent. So that the two parts of a tree, according to him, are not really the parts of a unitive whole, but only discrete units constituting no more than an aggregate. It is natural, therefore, that when the two parts come to be cognized, they cannot be felt as complementary to each other. They appear simply as unrelated items—indifferent slices of matter—which are incapable of being synthesized or integrated in such a manner as to give rise to the idea of a tree as a single composite

[3] *Ibid.*, p. 211.

[4] NV., p. 70; TSP., p. 81.

entity. There is, of course, the possibility of ideally combining, though not of unifying, the presented part with the represented one. But this could only result in the knowledge of two isolated items mechanically grouped together—of the front *plus* the back—and not of anything, of which the front as well as the back is an inseparable and integral element.[5]

Even if it be conceded that the idea of the tree arises when the two parts are cognized together, there is nothing to indicate that the tree is cognized inferentially. We may reconstruct or imagine a thing by ideally joining its parts, but the knowledge of the thing thus achieved is by no means inferential in character. For by an act of inference we neither relate the facts of experience nor experience facts as related, but know one fact through the medium of another because of an invariable relation between the two.

There is, as a matter of fact, not even any scope for inference. If by cognizing the parts as existing together we have a definite knowledge of what is called the tree, where is the necessity of arriving at this knowledge again by means of inference? What is already definitely known does not stand in need of being re-known at the same time. We do not *infer* the presence of fire from smoke where we actually observe smoke as attended by fire.[6]

The tree cannot be an object of inference also because the psychological conditions necessary for such inference are found to be absent. If the tree as an aggregate of its parts is to be validly inferred from the perception of one of these parts, it is necessary that the aggregate should be *believed* to be true, and also that the aggregate should be *known* to have an invariable relation with the part in question. But we can observe only a part and not the aggregate, which necessarily contains an unperceived part as well. And if the aggregate itself is imperceptible, we cannot claim to have ever directly experienced its relation with any of its parts.[7]

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[5] NV., II. i. 30, pp. 212-213.

[6] *Ibid.*, p. 212.

[7] *Ibid*

Again, the whole contention proceeds on the supposition that there can be an inference of the unperceived part from the perceived one. There is, however, no warrant for this supposition. We cannot, for instance, accept as a valid major premiss the proposition, 'The front necessarily possesses a back'. For, how can one part possess another? It is only a whole (*avayavin*) which can possess parts, but the whole is denied by the opponent. In his scheme the whole is replaced by something which is identical with its parts and cannot therefore possess them.[8] Nor can we put the required major premiss in the form 'There must be a back part wherever there is the front'. The obvious assumption, here, is that the back part exists invariably as an associate of the front. But it cannot be explained why the two parts should at all come together. They are discrete units having ordinarily no capacity for aggregating. Such units, however, are found to be *invariably together* only when they come under the operation of the causal principle in some way or other—either when they are related as cause and effect, or when they co-operate to produce a common effect and are thus members of a single causal collocation (*sāmagrī*), or when they are the co-effects of a common causal factor. We have thus the inseparable association of smoke with fire, because smoke cannot be produced except where fire is present as its cause ; of a potter with his apparatus and a lump of clay, because these are jointly responsible for the production of a pot ; of sweetness with whiteness in sugar, because these qualities are generated by the co-presence of similar qualities in the constituents of sugar. All these cases of 'being together as a matter of necessity' are governed by the law of causation either directly or indirectly.[9] Now if a thing be a mere sum total of discrete and independent parts, it cannot be regarded as produced by them. The background of a causal relation

[8] *Ibid.*

[9] *Yeṣāṃ tu na kāryakāraṇabhāvo nai 'kakāryatvaṃ vā nai 'kakāraṇatvaṃ vā teṣāṃ kuto niyamavatī pratyāsattiḥ.*

being thus absent, there is no necessity to compel the parts to hold together.

Let us, however, concede the possibility of the parts being somehow grouped together. But to be grouped together is not necessarily to be related. The question, therefore, confronts us: Are the two parts of the tree—the front and the back—related or not? If they are unrelated items, they form a manifold and cannot give rise to the notion of a unity, which certainly is felt in respect of the tree. If, however, there is any relation between the front and the back, it cannot be ascertained without reference to a whole which holds them together. The fact is that the front and the back are never perceived together, because one simply shuts out the other. So one can only perceive the front alone, or the back alone, and there is no reason to connect them together unless one perceives them both as related to a self-identical whole.[10] The impossibility of the perception of a relation between the front and the back makes the inference of one from the other impossible. But the entire situation becomes simple enough if a 'whole' is posited, as in that case the perception of the front as an adjunct to the whole can easily lead to the knowledge of the unperceived part by way of inference, because a whole necessarily possesses a front as well as a back. So it is not the part, front or back, but the whole that must be admitted as the ground of inference.

The existence of the whole *as a novel fact* is thus established by a *reductio ad absurdum* of the theory which seeks to identify a thing with its parts. But the cognition of a whole, or rather of an external object as a whole, is not, according to the Nyāya-Vaiśeṣika, reached by inference. It is not inference, since there is nothing from which the whole could be validly inferred. The whole, as a matter of fact, is directly perceived with the perception of one of its parts. If the whole were imperceptible, there could not be any knowledge of it

[10] *Ekāvayavisamavāyena hi parasparasambaddhau syātām.*

Ibid., p. 262.

even by means of inference. No relation between an imperceptible whole and a perceptible part can be observed ; and in the absence of the knowledge of a relation, no inference is possible. Moreover, if the whole were not amenable to perception, there could be no perception of a part either, because a part also is a whole in relation to its own parts. So the denial of the perception of a whole would ultimately reduce a body to a loose juxtaposition of imperceptible atoms. But this can only mean that no material object—not even the part of a tree lying before one's eyes—is ever perceptible. The position, however, is so obviously absurd that it cannot be countenanced even by the opponent. It cannot, therfore, be maintained that 'seeing' a tree is not perceiving it. The visual organ, in fact, is as much in contact with the tree as it is with the front part. And the objective conditions of perception, *viz.*, gross magnitude and manifest colour, are present alike in both of them. There is, therefore, no reason to suppose that only the part is perceived, and not the tree as a whole.[11]

The opponent questions the perceptibility of the whole on another ground. If the whole is to be perceived in its entirety, he argues, it must be perceived as existing in all the parts, for which, again, it is necessary that all the parts must be perceived together. But this is an impossible condition. All the parts cannot be perceived at one and the same time. The perception of the front, thus, necessarily precludes that of the back, so that when the whole is perceived in respect of the front, it cannot be perceived in respect of the back.[12] In other words, the whole cannot be perceived as it is in its entirety, but only in parts, which means that it is only the parts that are perceived, and not the whole. The whole could be perceived in its entirety if it were supposed to exist entirely and thus be exhausted in the part that is perceived. But this supposition is found to lead to absurd consequences, which will be apparent if the

[11] *Na hī'ndriyeṇa saṃnikṛṣyamāṇa ekadeśe tatsahacarito 'vayavī na sannikṛṣṭaḥ, tena yathai 'kadeśaḥ sannikarṣād upalabhyate evam avayavy api sannikarṣād upalabhyate.* NV., II. i. 32, p. 215.

[12] SBNT., p. 87.

relation of the whole to its parts is sought to be understood in terms of logical precision.

Does the whole exist in a part completely or partially? If it exists completely in one part, then the other parts are superfluous, because they can be of no service to it ; for the whole being exhausted in a single part, nothing is left of it to subsist in and be constituted by other parts.[13] Moreover, the whole, being devoid of a plurality of parts, cannot be an object of perception. A necessary condition of the perception of an external object is that it must have a gross magnitude accruing from a plurality of constituents, and the whole as conceived here positively lacks this qualification. Further, such a whole would be an indestructible entity. A gross substance is destroyed when its constituents are separated. But as it turns out that the whole has a single part as its cause, the question of its constituents being separated does not arise.[14] The issue, however, is preposterous, because a thing that has a definite origin in time must be liable to destruction. Again, it is inconceivable how the whole can be exhausted in a part, since the two are obviously possessed of different magnitudes. And if the whole be supposed to exist in each of its parts in its entire extension, then there would be as many wholes as there are parts, which can only mean that only parts exist and not the whole.[15]

Nor can the whole exist partially in each of its different parts. If it could, it would be something existing in its constituent parts through the medium of a set of intrinsic, non-constituent parts. But this would imply that only parts exist in parts, and the relation of the whole to its constituent parts remains unexplained. The question also arises: How is the whole related to its intrinsic, non-constituent parts? If the whole is to exist, part by part, in these parts, there would be a fresh set of parts, and the question of relation, again, would

[13] NV., II. i. 32, p. 216; TSP. on verse 608.
[14] NV., II. i. 32, p. 216.
[15] TSP. on verse 613.

necessitate the postulation of a further set of parts, and so on *ad infinitum*.[16] The whole, therefore, cannot be supposed to have any parts other than those that constitute it. But even then the position is exposed to a fatal attack from another direction. The whole is supposed to exist in all its constituent parts. Now it may be asked, "Does the whole exist in the same manner or differently in its different parts?" It is obvious enough that a thing cannot exist simultaneously in different loci in the same manner. The existence of a finite substance in one place precludes its existence in another unless the manner of existence be different. Any deviation from this principle is inconceivable. If it be the nature of a whole to exist in a particular part, and if the same whole be supposed to exist in another part as well (which obviously occupies a different position in space), in the same manner, we are confronted with the absurdity of two different parts being completely identified, particularly in view of the fact that the whole as such is not capable of being divided in its existence. If, however, the nature of the whole be supposed to vary according to the variation of parts, the whole cannot be a self-identical unity underlying all its parts.[17] In other words, there cannot be any whole, much less a perception of it.

The dialectical objections registered by the opponent against the conception of the whole as a single unified entity may be summed up thus: If the whole exists, it must bear a definite relation to its parts. But every conceivable kind of relation is found to be logically indefensible. The whole, therefore, is an unfounded assumption.

The objections, it may be observed in reply, are all based upon a misconception of the nature of the whole as advocated by the Nyāya-Vaiśeṣika. The whole, according to him, is a unit and, as such, is incapable of being divided into parts. The parts have a separate status of their own, and though they effectuate the whole, they cannot infect it with their plurality. The whole is produced by the parts, and so the latter are said

[16] *Ibid.*

[17] TS., verses 610-611; also *vide* TSP. thereon.

to belong to it. Thus the whole *per se* has no parts of its own except those which are its constituents.[18] That being the case, the question whether the whole can partially exist in a part is irrelevant. The concept of completeness (*kārtsnya*) also is inapplicable to a unitary entity. Completeness, which carries with it the notion of totality, implies such collection of the parts of a group as leaves none of them unincluded.[19] The whole is not a totality of parts but a separate unit. Hence it is not legitimate to ask whether it exists anywhere in its totality.

In what precise manner, then, does the whole exist in its parts? What, in other words, is the exact nature of the relation which a composite bears to its constituents? The Naiyāyika answers the question as follows: The relation of the whole to its parts can only be described as one of the container and the content (*āśrayāśrayibhāva*). The parts are the constitutive (non-spatial) locus (*āśraya*), and the whole is their product and content (*āśrita*). The relation is called inherence (*samavāya*). The whole *inheres in* the parts. The relation must not be understood on the analogy of conjunction (*saṃyoga*). It is a peculiar relation which is posited on the ground that the whole, though distinct from the parts, is not found outside them.[20] It may be asked, "Has such a relation been observed anywhere else? If not, how can you posit a relation which has no like of its own?" But the question is futile. It asks for an analogous case (*dṛṣṭānta*), which may be necessary in inference. But the whole is a matter of perception, and so also its relation. An example does not in any way strengthen the evidentiary value of perceptual cognition, and so the lack of example does not detract from its validity.[21]

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[18] *Avayavinas tu svāvayaveṣu vṛttiṃ prati nā 'vayavāntarāṇi santī 'ti rūpamātreṇa tatra vartate 'vayavī 'ti.* NVTT., II. i. 32, p. 265.

[19] *Nā 'vayavī kṛtsnaḥ. . . .. kṛtsnam iti khalv anekasyā 'śeṣasyā 'bhidhānam.* NV., II. i. 30, p. 216.

[20] *Pṛthagāśrayāśrayitvaṃ cā 'vayavāvayavinor bhinnatve 'pi nā 'sti.* NK., p. 42.

[21] *Vṛttir evaṃvidhā 'nyatra kva dṛṣṭe 'ti yad ucyate |*
pratyakṣadṛṣṭa evā 'rthe dṛṣṭāntānveṣaṇena kim ||
NM., pt. II, p. 115.

It appears that, according to the Nyāya-Vaiśeṣika, the whole is an indivisible unity underlying all its constituent parts and inseparable from them. The whole, therefore, must be supposed to be revealed *entirely* even when a particular part is perceived. The whole, in fact, is perceived whenever any part is perceived. Thus, for instance, when we see the front of a tree, we see not only the front, but also the whole tree in and through this part. Similarly, when we see any other part of the tree, we see also the whole tree with it.[22] If there is any difference in the contents of perception in the two cases, it is due to the difference of parts, and not to any difference in the nature of the whole, for the whole as a single self-identical entity is common to both the situations.

But here it may be asked: "If the whole is perceived as associated with its different parts on different occasions, how can we logically say that it is one and the same whole which is perceived on all these occasions? Does not the difference of associates entail numerical difference?" To this the Naiyāyika replies that a mere distinction based upon a purely external condition or accidental association does not argue separateness in existence. A person may be seen as associated either with his father or with his wife; but nobody would for that reason doubt his personal identity. Similarly in the case of the whole. However may the associated parts vary in the different acts of perception, it is the same whole that is perceived through each of these parts.

It is clear, therefore, that for the perception of a whole, the perception of even a single part is a sufficient condition. The whole, however, is perceived together with that part with which the sense-organ is in contact, and not with that part which is shut out from the sense-organ. But does it not amount to the admission that when the whole is perceived in connection with one part, it is *not* perceived in connection with another? And is it possible for a unitary principle, such as the whole is claimed to be, to be both perceived and not per-

[22] NVTT., II. i. 31, p. 263.

ceived simultaneously? Evidently, these are contradictory characteristics which cannot co-exist in a common substratum. In reply, the Naiyāyika observes that the two contradictory characteristics really belong to two different parts, and not to the whole, which is distinct from each of them. There is thus no contradiction between the whole being perceived and a part of it remaining unperceived. For, as we have seen, it is not essential to the perception of a whole that it should be perceived together with all its parts. So, whether associated with one part or with another, whether associated with any particular part or not, the whole as perceived is in every case the self-identical content of perception. If it were only the perception of a part and not of a whole as well, as associated with the part, there would be no possibility of recognizing or identifying a particular whole, or of distinguishing one whole from another, say a tree from a hill. The content of the perception of an external object is, therefore, not simply a part but also the whole.

To sum up the conclusions, the whole cannot be equivalent to a mere aggregate of its parts, because the perception of it as a single unified thing is an uncontradicted fact. The theory which equates the whole with the totality of parts serves only to show that the perception of the whole, which is a felt fact, is impossible. In other words, the theory defeats itself. It sets itself to explain the *raison d'être* of the perception of the whole, but ends in a declaration, though not exactly in so many words, that there is no such perception at all. To deny the existence of the problem is not, however, an explanation of it. An analysis of the nature and constitution of the perceived whole reveals the fact that the whole subsists in all its perceived and unperceived parts; it is composed of its parts and derives its being from them, but at the same time it is something in excess of them. The Nyāya-Vaiśeṣika conception of the whole thus closely resembles that of Russell. The whole, according to Russell, is "a new single term, distinct from each of its parts and from all of them. It is one, not many, and is related to the parts, but has a being distinct from theirs."[24]

[24] Russell, *Principles of Mathematics*, p. 141.

2. THE WHOLE AS DISTINCT FROM ITS PARTS: THE ONTOLOGICAL DEFENCE

The Sāṅkhya and the Mīmāṃsaka agree with the Nyāya-Vaiśeṣika in admitting the objectivity of the whole. They do not, however, subscribe to the Nyāya-Vaiśeṣika position that the whole is altogether a new unit—something fundamentally different from its parts.[25] This position, they argue, is beset with formidable logical difficulties. The difficulties are, of course, mainly logical, but they arise directly from the peculiar ontological status which the Nyāya-Vaiśeṣika claims for the whole. Let us see what these difficulties are and how, if at all, they can be met.

The relation of part and whole, it is contended, cannot subsist between two distinct entities. It is because a cow is distinct from a horse that the one is not a part of the other. Hence, whatever is a part of anything is not different from that thing. The yarns, therefore, being parts of a cloth, are not different from the cloth.[26]

This argument, according to the Nyāya-Vaiśeṣika, is vitiated by what is technically called the fallacy of *viruddha* or the contradictory probans. 'Being a part' has here been made the logical ground (*hetu*) for establishing a thing's non-difference from the whole of which it is a part. But the very conception of a part implies a whole different from it. To be a part, a thing must be the part of a whole; it cannot be a part unless there be a whole into the composition of which it enters. The part is *of* the whole, and the whole is *in* the part. The part is thus the container of which the whole is the content. A thing, however, cannot be a part of itself, since it cannot have itself as its own container. There can be no relation of part and whole in a single self-identical entity. A part, therefore, is a necessary correlate of the whole; and unless the two terms stand for numerically different entities,

[25] *Nā 'vayavinam apahnumahe, dravyāntarotpattiṃ tu ne 'cchāmaḥ, pratipattyabhāvāt.* SD., p. 43.

[26] NV., II. i. 33, p. 219.

both of them must be dismissed as nonsensical.[27] 'Being a part' as a logical ground is thus found to *disprove* the very proposition which it is employed to prove.

The part, again, is held to be the material cause of the whole ; it is, in other words, what the whole is made up of. If the whole were identical with the part, it would mean that the product is identical with its causal stuff. But how can any stuff be regarded as causal unless it is something of which something else is composed ? It is absurd to suggest that what is composed of some stuff is nothing but the stuff itself.' A cloth is made up of yarns, but the yarns obviously are not what the cloth is ; if they were, they would come to be designated as cloth. It has been argued that the yarns as closely conjoined in a specific relation (*saṃsthānaviśeṣa*), and not as isolated facts, are given the name of cloth.[28] In other words, the whole is nothing but a combination of parts in a certain order. But this also is an untenable position. Is the particular combination different from the parts, or not ? If it is not different, then the clause 'combination of parts' becomes meaningless. And if it is different, the production of a novel fact will have to be admitted.[29] So the only inducement for advocating the identity of cause and effect, which leads to the identification of part and whole by the Sāṅkhya, ceases to exist. We refrain, at this stage, from elaborating this argument further, as it will involve a discussion of the problem of causality, which we propose to deal with in the next chapter.

It is, again, argued by the Sāṅkhya that the whole is not distinct from the parts because it is the product of the latter. If the whole were a distinct entity, it could not be produced by the parts. A cow, for instance, which is different from a horse, is not produced by a horse. But this argument is a case of pure *non sequitur*. It proceeds on the assumption that the effect cannot be a different substance from the cause. But a

[27] *Ibid.*, 220.

[28] *Tantava eva tena tena saṃsthānabhedena 'pariṇatāḥ paṭaḥ, na tantubhyo 'rthāntaraṃ paṭaḥ.* STK. on verse 9; *cf.* SD., p. 43 .

[29] NV., II. i. 33, pp. 220-221.

cloth is seen to be produced by the weaving apparatus, which is admittedly a different entity from the cloth. If the effect and the cause were really identical, it would be impossible to explain why a cloth is not produced from itself. So we cannot identify the whole and the part on the ground of their causal relation.[30]

Another argument advanced by the Sāṅkhya may be summed up thus: It is found that parts which are different from a particular whole are not the parts of that whole; they are parts of another whole. The parts of a table, for instance, are different from a cloth; so they are not parts of the cloth, but are parts of the table. If yarns, which are the parts of a cloth, were different from the cloth in the same way as the parts of a table are, then they, like the parts of the table, would be the parts of something other than the cloth. The fact, however, is that yarns are not the parts of anything but the cloth. Yarns, therefore, are not different from the cloth.[31]

To this argument Uddyotakara's answer is that it assumes, as the logical ground for proving identity, a condition which is not necessary for ensuring identity and which, as matter of fact, is found to be absent even where identity is beyond dispute. It is not essential to the identity of *A* with *B* that *A* should not be the part of anything other than *B*. For *A* is admitted to be identical with its own self, although we *cannot* say of it that it is not the part of anything but itself, since it is impossible for a thing to be understood as its own part.[32]

Moreover, in the argument reference is made to a whole and its parts. If there were no such thing as a whole, how could the parts of one whole be assumed to be different from another whole?[33]

And yet another argument is put forward by the Sāṅkhya in support of his position. Two things are considered as different from each other when one of them and the constituent of another cannot simultaneously occupy the same position in

[30] *Ibid.*, p. 228.
[31] *Ibid.*, p. 229.
[32] *Ibid.*
[33] *Ibid.*

space. Thus, of two admittedly different things, such as a cow and a horse, each is found to be produced in a place different from that actually occupied by the other. But we cannot conceive a whole to come into being in a place where its parts do not exist ; the whole, therefore, is not different from its parts.[34]

But in this argument also, as in the previous one, the Sāṅkhya proposes a criterion of identity which, according to Uddyotakara, is wholly unacceptable. A thing is identical with itself. But to prove this, it is necessary, according to the Sāṅkhya, to show that the thing is produced in the place where it already exists. This, however, is absurd ; for that which already exists somewhere does not stand in need of being produced there.[35]

The argument, again, assumes the whole to be *produced* where its parts exist. But if there is no such thing as a whole that is distinct from its parts, what is the meaning of *production*? The parts certainly do not produce themselves ; nor do they, on the Sāṅkhya view, produce a whole different from them. To be consistent, the Sāṅkhya should declare that nothing is really produced, and that the idea of production is an unfounded illusion.[36] But this is a consequence which is repugnant to the Sāṅkhya doctrine of causality, on which the whole Sāṅkhya theory of cosmic evolution is based.

A very important ground, according to the Sāṅkhya, for accepting the identity of the part and the whole is that they invariably have the same weight. We do not find any reason for ascribing to the whole a weight different from that of its parts. The weight of a body is not found to exceed that of its constituents, when tested in a balance. A pound of yarns cannot certainly produce a textile more than a pound in weight. This, the Sāṅkhya contends, clearly proves that the textile is not anything different from the yarns it is composed of.[37]

[34] *Ibid.*

[35] *Ibid.*

[36] *Ibid.*, pp. 229-230.

[37] STK. on verse 9, p. 69.

The Nyāya-Vaiśeṣika, however, sees in this argument an assumption which goes against what he calls the principle of qualitative causation. According to this principle, a quality of the cause produces a corresponding quality in the effect, and the two qualities, though similar, are numerically different from each other. The whole, therefore, should be supposed to have its own weight, which it derives from the causal efficiency of the weight of the parts. The weight of the whole, thus, is not the weight of the parts. We cannot, of course, distinguish between the two weights, but that is not because there is no difference between them, but because we lack the capacity to appreciate the difference.[38] In fact, if a whole (*i.e.*, a body) had no weight of its own, it would not fall down when left unsupported, for the fall of a substance can be caused only by its own weight.[39] It cannot be contended that the weight of the parts is responsible for the fall of the whole. For it is only when two substances are in *conjunction* with each other that the weight of one contributes to the fall of the other ; but the whole, which *inheres* in its parts, *cannot be in conjunction* with them.[40] So the whole must be credited with a specific weight of its own, and cannot be identified with its parts on the ground of the sameness of weight.[41]

[38] NV., II. i. 33, p. 237.

[39] *Ibid.*

[40] *Ibid.*, p. 238.

[41] Uddyotakara seems to be very much exercised over the question as to why we are not able to distinguish the weight of the whole from that of its parts. He attributes the inability to the limitations of our sense-faculties. He records and refutes a few other views on the question. According to one view, the weight of the parts is obstructed (*pratibaddha*) or rendered ineffective by the weight of the whole. So long, therefore, as the whole exists, the parts have practically no weight; there is thus no excess of weight in the whole. But this is untenable. If on the fall of the whole the parts remained stationary, we could accept the explanation. But, in fact, the parts do not stick in their own position when the whole falls. If they did, the whole would have no constitutive locus when it fell down; but the existence of the whole as detached from the parts is unthinkable. The same difficulties also appear in connection with an analogous theory

Another ground in support of the Sāṅkhya position, endorsed also by the Mīmāṃsaka and the Buddhist, relates to the colour of the whole. If the whole be a distinct entity amenable to visual perception, it must be shown to have a distinctive colour of its own, that is to say, a colour other than that of the parts. But no such colour can be specifically assigned to the whole. When the whole is perceived, it is only the colour of the parts that is perceived. The whole, therefore, cannot be separate from its parts.[42]

In reply the Nyāya-Vaiśeṣika observes that, since the whole is a perceived fact, the colour by virtue of which it is perceived should be regarded as its own colour.[43] The whole being a product of its parts, the colour of the whole is the product of the colour of the parts. In cases where the colour of the parts is uniform and unvaried, the colour of the whole is also of the same kind. It is the sameness of kind that makes it impossible for our faculty of vision to differentiate the colour of the whole from that of its parts. The production of a separate colour in the whole cannot therefore be denied on the ground of its being indistinguishable from the colour of the parts.

which holds that the weight of the parts is destroyed by the weight of the whole. There are also additional objections to this theory. If the weight of the whole destroys the weight of the parts, then on the destruction of the whole, the isolated parts would be incapable of falling, because they would no longer possess any weight. In fact, on this theory, there would be no weight in any substance in the world. The ultimate parts of a substance are the atoms, and there are no atoms which have not produced any composite at any time in the past. If the weight of the whole completely neutralizes the weight of the parts, then all the present atoms must be supposed to be devoid of weight. So also all the substances that are now produced from these weightless atoms directly or indirectly would fail to have any weight. Uddyotakara accordingly concludes that these theories must be rejected, and the theory of human limitation must be accepted as the only explanation of our failure to differentiate between the weight of a whole and that of its parts (*vide* NV., II. i. 33, p. 240).

42 SD., p. 107.

43 NV., IV. ii. 12, p. 510.

The existence of a separate colour in the whole is, according to the Nyāya-Vaiśeṣika, conclusively proved by the emergence of what may be called a variegated colour (*citrarūpa*) in an object (say a cloth) produced from parts (*i.e.*, yarns) possessing different types of colour. A variegated colour is not the same thing as a variety of colours : the one is a single unified colour, and the other a manifold of mutually distinguishable colours.[44] When, therefore, we speak of a multi-coloured cloth, we distinctly understand one particular type of colour to be present in the whole fabric of the cloth. On the Nyāya-Vaiśeṣika view, colour by its very nature is pervasive of its substratum (*vyāpyavṛtti*). If a particular colour is present in any part of a thing, it cannot be absent in any other part of the same thing. When a piece of chalk is described as white, it is assumed to be white in every part of it. It thus follows that the apparent co-presence of a number of colours in a multi-coloured thing should be explained as implying the absence of each of these colours and the emergence of a new colour, *viz.*, variegated colour, through their combination.[45] And this variegated colour must have a cause ; it is the colours of the parts which generate it. The colour of one part, however, is different from that of another, and so there is no variegated colour in any one part. We have, therefore, to admit that the variegated colour belongs to the whole, and not to the parts.

The fact is that, if the whole had no colour of its own, it would not be capable of being perceived. It cannot be contended that the colour of the parts imparts perceptibility to the whole. As Uddyotakara points out, the colour of one substance can under no circumstances make another substance perceptible, as in that case the colour of the wall of a room might make the air associated with it visually perceptible.[46] So it must be concluded that the whole is perceived by virtue of its own colour, which is always different from the colour of

[44] *Ibid.*, p. 511.

[45] *Na ca nīlapītādaya eva bahavo 'vyāpyavṛttayaś citrapadāspadam, rūpādīnāṃ vyāpyavṛttitvāt.* NVTT., IV. ii. 12, p. 454.'

[46] NV., IV. ii. 12, p. 512.

its parts. Even the variegated colour, which is seen to be produced by colours of different kinds, has to be recognized as a distinct type of colour belonging to a multi-coloured whole and making it perceptible. The objection, therefore, that the whole does not exist as a separate entity because it cannot have a colour of its own, is, according to the Nyāya-Vaiśeṣika, based on misinterpretation of experience and shallow logic.

3. Objections of the Buddhist Nihilist Examined

The Buddhist nihilist (śūnyavādin) objects to the reality of the whole on the ground that any cognition referring to a whole as its object is necessarily a false cognition. According to him, things cannot be accepted as really existing facts on the evidence of our knowledge of them. Knowledge can be proof of objective facts only if it is true. But no knowledge is true, for no knowledge is a faithful presentation of its object. What we find out about a thing when we cognize it, is different from what we find out about it when we analyse it by reason. A cognition is thus incapable of revealing the true nature of its object. Take, for instance, the cognition of a piece of cloth. The cloth is cognized as a whole composed of yarns and characterized in a specific way. But if we analyse it, we find nothing but yarns. If these yarns are taken out ideally (or actually), nothing is left. Hence, apart from yarns, there is not anything which may be spotted out as the object of the cognition of a cloth. The cognition of a cloth has, therefore, no object of its own—at least no object with the special features which characterize what we call a cloth. It thus turns out to be a false cognition. And since nothing can be established on the strength of a false cognition, a cloth, or any whole, for the matter of that, even if it be actually cognized, should be regarded as unreal.[47]

[47] NS., IV. ii. 26 and NBh. on it.
Cf. Buddhyā vivicyamānānām svabhāvo nā 'vadhāryate |
ato nirabhilāpyās te niḥsvabhāvāś ca darśitāḥ ||
Laṅkāvatārasūtra (ed. Buddhist Text Society), p. 116, verse 173.

Gautama holds that the case made out by the Buddhist nihilist for the rejection of the whole, is based upon an argument which involves self-contradiction. The self-contradiction, according to Vātsyāyana, arises out of the assumption that a thing is analysable by means of reason and yet its intrinsic nature is not accessible to reason. The fact, however, is that in the very act of analysing things, reason apprehends the real nature of them. Analysis is really a process of ascertaining the nature of things. Hence, if things are admitted to be capable of being analysed, it cannot be said that the real nature of things is not cognized. The position that no cognition is valid because no cognition can have an unerring objective reference, is therefore untenable.[48]

Uddyotakara points out that when the nihilist admits the possibility of analysing things by reason, he simply contradicts himself. For, if an analysis of things is possible, it cannot be said that all things are unreal; and if all things are unreal, there can be no analysing of things.[49]

The question also arises: Is there any proof by means of which the unreality of all things can be established? If there is any proof, it has at any rate to be admitted as real; for, if the means of proving be false, the conclusion can have no ground to be accepted as true. But to hold that the proof of unreality is real, is to deny that all things are unreal. To be consistent, the nihilist must assert that, since nothing is real, there can be no such thing as a proof of the unreality of all things. But in that case, in the absence of proof, the unreality of all things cannot be established. If it is contended that the position can be established even without the help of any proof, then why should not the contrary position, *viz.*, that all things are real, be supposed to be capable of being established in the same way? The Naiyāyika, therefore, holds that it is not a fact that all things are unreal or that all cognitions of things are erroneous.[50] In fact, any material body as a single

[48] NS., IV. ii. 27.
[49] NV., IV. ii. 27.
[50] NBh., IV. ii. 30.

composite whole is directly presented to the senses ; it is thus the object of a definite perceptual experience. And since this experience has no ground to be considered as false or invalid, the whole, which is its ground and content, cannot be regarded as unreal.

The nihilist has argued that the whole as such does not exist because it is not perceived separately from its parts. But this objection, the Naiyāyika replies, is ambiguous and misleading. If it is meant that the perception of the whole is not anything different from the perception of the parts, the objection is obviously false. For the two perceptions are found to be materially dissimilar to each other ; the perception of the yarns is that of a plurality of discrete things, and the perception of the cloth is that of a single, unified thing. If, again, the objection is taken to imply that the whole has no existence distinct from that of its parts, that also appears to be contrary to the fact. The yarns are found to have their locus in cotton-fibres, and the cloth is found to have it in the yarns. And things existing in different loci cannot be said to have an identity of existence. If, however, the objection is construed to mean that the whole is not perceived outside the parts, it can have no force against the reality of the whole as a distinct entity. The whole, as the product of its component parts, cannot exist independently of them. The parts constitute the only locus of the whole, and so the whole cannot be perceieved outside the parts. If it is to be perceived at all, it must be perceived in the locus where it exists and with which it is linked up by the relation of inherence. Where one thing is found to exist in another by way of inherence, the two are inseparable. Separation in this case means the destruction of one of the terms in relation. But this does not imply that the terms are not numerically different. The whole, therefore, is a distinct concrete fact which, though physically inseparable from its parts, has an existence separate from theirs.[51]

[1] NV. and NVTT., IV. ii. 28.

4. The Position of the Buddhist Realist Examined

We now propose to discuss the position of the Sautrāntika Buddhist. Though, as a realist, he admits the existence of external bodies, he does not believe them to be independent wholes.

But, then, the question arises: If there be no whole, how can there be a body? What, in other words, is the nature of a body if it is not a whole composed of parts? A philosopher who denies wholes cannot consistently believe in parts, which also are wholes in relation to their own parts. According to him, therefore, there should be no combination of parts into wholes, and the only possibility left open to our understanding is the co-existence of free atoms. The Buddhist accordingly maintains that what appears as a material body is nothing but a conglomeration of atoms, and that the perception of these atoms is the perception of the body.

Paṇḍita Aśoka has explained the Buddhist position thus: The atoms come to be marshalled in a particular order, each occupying a point of space different from that occupied by another; and thus existing side by side, and collectively occupying a relatively large section of space, they *appear* as an extended body. So the perception of a mass of unextended atoms as an extended body is possible only when they are *simultaneously* preseneted to a particular sense. They must however be *sensed* as so many *discrete* units existing together—each separated from others clustered round it, not by gaps of any kind, but by its own intrinsic form and dimension. Unless the atoms are thus kept apart in sense-perception, there would be nothing to prevent them from appearing as coalescing at one point and having no extension in space.[52]

The attribute of extension, the Buddhist maintains, cannot, strictly speaking, be objectively real, as it does not belong to atoms individually, and as the mere existing together of a plurality of atoms does not create a new fact. But this does not imply that the appearance of a plurality of unextended

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[52] SBNT., p. 79.

atoms as an extended body is an illusion. Extendedness in a perceived body is a felt fact ; it is perceived whenever a body is perceived. In fact, extendedness emerges as a quality characterizing a compact collection of atoms when these are all apprehended by a single act of sense-perception, and it remains as a quality of them so long as they continue to be apprehended in the same way. Extendedness is thus really the characteristic of the presented sense-datum, or sensum as it is more significantly called.[53]

But here it may be asked : "If extendedness belongs only to a sensum, are we to suppose that there cannot be any extendedness in a thing except when it is actually sensed, or that there cannot be anything characterized as extended before it is perceived and after it ceases to be perceived?" In reply the Buddhist says that, though extendedness is only a quality of a sensum (*pratibhāsadharma*), it is not ungrounded in the objective reality. The fact is that a plurality of atoms in a specific combination, *quâ* a possible sensum, does possess the capacity for being sensed as an extended body. Whenever the atoms combine in a specific manner, they become perceivable (*pratibhāsayogya*) ; and so long as they are perceivable, they must necessarily have extension in space. Thus an extended body, according to the Buddhist, is absolutely independent of a percipient ; it is there whenever there is a specific combination of atoms, whether it is actually perceived or not.[54]

The question as to how extension can belong to a group of atoms when it is not found in any one of them does not trouble the Buddhist at all. The presence of a particular quality in an aggregate is, according to him, not necessarily inconsistent with the absence of the same in the units. It is quite possible for an aggregate to develop a peculiarity which is not repugnant to any quality that the units may individually possess. If a bundle of yellow threads does not appear as red, it is because there is a natural contradiction between yellowness and redness, which, being mutually exclusive, are never found

[53] *Ibid.*, pp. 79-80.
[54] *Ibid.*, p. 80.

together. But there is no such contradiction between the indivisibility of an atom and the extendedness of a mass of atoms. An atom is unextended because it is indivisible, while a group of atoms appears as extended because it is made up of a plurality of discrete units. The atoms thus need not and, as a matter of fact, do not, cease to be indivisible and individually imperceptible even when they form a group which is perceived as a body with extension.[55]

Let us now examine the Buddhist hypothesis from the standpoint of the Nyāya-Vaiśeṣika. Extension is admittedly an inseparable aspect of what appears as a material body ; it is, in fact, what makes the body perceptible. If, therefore, a body were a mere assemblage of atoms, which the Buddhist supposes it is, it would mean that atoms which are imperceptible in isolation become perceptible when they happen to be together. This, to all appearances, is an anomalous position ; but the Buddhist does not hesitate to accept it. The gist of his contention, it appears, is that an assemblage of infra-sensible atoms succeeds in getting sensed by us in some such manner as a mass of hair may be seen from a distance even by a myopic person, to whom a single isolated hair is apparently invisible.[56]

Gautama points out that the analogy is wholly inapposite, since it takes no account of the distinction between the nature of a hair and that of an atom. A hair is not intrinsically invisible, for it has extension as well as colour ; any person with normal vision can see it. If, therefore, a mass of hair is visible from a distance and a single hair is not, it is because the necessary subjective condition of the visual perception of an object is present in one case and absent in another. But even the fulfilment of the subjective condition of perception cannot make an atom perceptible. An atom is intrinsically incapable of being sensed ; if it were sensible under any condition, it would not be an atom. It is, therefore, extremely difficult to understand how any atom, even in combination with other atoms, can *appear* to have a characteristic which is other

[55] *Ibid.*, p. 81.

[56] NS., IV. ii. 13.

than and inconsistent with what it *really* does have. The Buddhist, of course, would say that when several imperceptible atoms combine in a particular order, they *develop* a new character of their own, *viz.*, that of being perceptible. But this explanation cannot be accepted unless it be posited that something new has supervened to produce this abrupt change in the intrinsic nature of the atoms. It may be argued that the fact of combination (*sañcaya*) is itself a novel circumstance that accounts for the emergence of this novel phenomenon. But this is untenable, because combination is nothing but the conjunction of atoms, and the conjunction of imperceptible things can never be perceptible. Besides, conjunction being admittedly an external relation cannot be supposed to induce any change in the nature of the terms related by it. If, therefore, the perception of a body as an extended thing is to be believed as genuine, the emergence of a novel entity in the shape of a whole must be admitted as a fact.[57]

The Buddhist, we have seen, holds that extension is an *objectively real* quality of an assemblage of atoms. The view, however, does not seem to be warranted by the explanation he offers of the emergence of this quality. According to the Buddhist, in order to be perceived as extended, atoms must not only occupy different postions in space and be presented simultaneously to consciousness, but also combine in a compact form leaving no inter-atomic gap (*nirantara*). But even if we concede that there may not be any inter-atomic space in a perceptible group of atoms, any such group, it has to be admitted even by the Buddhist, is necessarily made up of atoms of different kinds—the atoms of each kind being interspersed with those of other kinds and thus separated from one another by them. It is, therefore, not correct to say that there are no gaps between the atoms. For instance, in what is regarded as a visual sensum, there are atoms of taste, smell and touch intervening between the atoms of colour, on which alone the optic sense operates. And since only one sense can operate at a time, when the atoms of colour are perceived, the other

[57] NS., NBh. and NV., IV. ii. 14.

atoms separating them remain unperceived. The visual impression of continuity, which alone can make the idea of extension possible in this case, thus turns out to be the result of the failure to apprehend the gaps that separate the visible order of atoms; it is, therefore, a pure illusion. The fact is that if extension is to be regarded as a real quality, it must *inhere in* the thing which is perceived as qualified by it. To say that atoms in combination have this quality though atoms in isolation lack it, is virtually to admit that the atoms, through being combined, produce an altogether new substance—a whole which not only appears as extended but is intrinsically so.[58]

There is another important point in the Sautrāntika's hypothesis which needs consideration. It is assumed that, in order to be perceived as extended, atoms must not only be simultaneously presented to consciousness, but also be sensibly differentiated from one another. The act of sensing, thus, when directed upon the atoms, cannot be supposed to annul their plurality or separateness of existence. How, then, is it possible for a *plurality* of discrete atoms to appear as a *single* body?

The Sautrāntika answers the question thus: The idea of unity in respect of what is really a plurality of atoms is an illusion; it is produced by the functional identity (*ekakāryopayogitva*) of the atoms. What, for instance, appears as a pot is only a vast number of atoms participating in the common task, say, of holding water; these atoms are imagined to be a single body inasmuch as they all contribute to the formation of a determinate group serving a definite purpose.[59] An illusion of this kind is not unusual. We speak, for instance, of *one* forest, though in reality a forest is nothing but a number of trees, each of which exists apart from others. The atoms, therefore, though many, are, like the trees of a distant forest, falsely perceived as a single thing and collectively called by a common name.[60]

[58] NVTT., II. i. 36, p. 275
[59] TSP. on verse 589.
[60] NBh., II. i. 36.

The Nyāya-Vaiśeṣika, however, does not accept the Buddhist view that the felt unity in a perceived thing is in every case objectively non-existent. The perception of unity may, of course, sometimes be false, *e.g.*, the perception of *many* trees as *one* forest. A forest is nothing but a collection of trees which are normally perceivable as distinct entities; but when owing to distance, which is an obvious obstacle to correct perception, the trees cannot be perceptually distinguished from one another, they are *misperceived as one* forest.[61] The perception of unity, thus, is false only if there is a non-perception of the separateness or individuality (*pṛthaktva*) of each of the units forming a manifold. No such false perception is, however, possible in the case of a body which, according to the Buddhist, is only a manifold of atoms. For, atoms being intrinsically imperceptible, the question of non-perception of their separateness from one another cannot logically arise. Non-perception of separateness as a factor causing an illusion of unity can only mean failure, due to accidental *external* conditions (like distance, absence of light, etc.), to discriminate things which are by their very nature *perceivable* as distinct entities. But the non-perception of the separateness of atoms from one another follows as a matter of logical necessity from the *intrinsic* imperceptibility of the atoms themselves; it cannot therefore be held to account for an illusion of unity.[62]

The perception of many as one is certainly a case of false perception or illusion. But the question is: Is there any possibility of falsely perceiving many atoms as one object? In illusion we attribute to a presented fact a character which does not really belong to it. But this attribution can take place only after the fact itself is sensed. Illusion, therefore, is

[61] To guard against a possible misunderstanding it must be stated that the Naiyāyika realist believes that a forest is a distinct entity. According to him, therefore, the perception of unity in a forest is veridical. It is spoken of as illusory as a concession to the belief of the opponent.

[62] NV., II. i. 36, p. 244.

possible when we apprehend certain general features of a given sensum, but fail to notice its distinctive, individual character. In darkness, for instance, we see a rope rather indistinctly as a long tortuous thing (*i.e.*, as having a shape similar to that of a snake), but fail to discern in it those special features which characterize a rope as such ; hence the possibility of the illusion of a snake in a rope. But atoms are intrinsically incapable of being presented to the senses. They cannot, therefore, be apprehended even in a general and indecisive manner as things of some kind. And when even a simple, undifferentiated apprehension of them is impossible, there can be no question of failure to take note of their distinctive features. The condition of an illusory perception of unity is thus conspicuous by its absence in the case of atoms.[63]

There is another objection to the Buddhist position. Illusion, as we have seen, implies the apprehension of a presented sensum in the character of an unpresented object. A prior knowledge of the unpresented object is accordingly an obvious condition of the ascription of its character to the presented sensum. When, for instance, somebody mistakes a rope for a snake, the idea of a snake is present in his mind, though no particular snake is present to his senses in the immediate spatio-temporal context. If he had no previous veridical experience of a snake, he could have no idea as to what a snake is like, and there would be no occasion, so far as he is concerned, for the illusion in question to arise. The illusory perception of many atoms as a unity, therefore, presupposes a veridical perception of unity somewhere in the past. But no such perception is possible on the Buddhist theory of the constitution of matter.[64] The Nyāya-Vaiśeṣika would say that a false perception of *many* trees as *one* forest is possible because the knowledge of a tree as a *unity* is in the background of our consciousness. But the Buddhist cannot lay hold of a single instance in which a real unity is actually perceived in the

[63] NV., IV. ii. 14, p. 513.

[64] NBh., II. i. 36.

external world. The tree, or, for the matter of that, any object that is presented to the visual sense, is, according to him, an aggregate of atoms ; so the perception of it, if such perception were at all possible, cannot be regarded as an example of a veridical knowledge of unity. Nor is the evidence of other senses likely to be more helpful in the matter. The Buddhist does not believe in the difference of substance and quality ; and so the objects of the auditory, olfactory and gustatory perceptions are, for him, nothing but aggregates of atoms.[65] Accordingly when we feel a particular sound or smell or taste as *one*, we do not really have a correct appreciation of its numerical quality. The Buddhist, therefore, must acknowledge, unless he repudiates his own theory of the material world, that there is no factual unity which is perceivable at any time or in any place, and that consequently there can be no false perception of unity in respect of what, on his own showing, is a manifold of atoms. It is, thus, not an illusory unity that we perceive when we perceive a body as a single thing.

A striking confirmation of the position may be obtained from an analysis of any perceptual judgment, such as that 'this *one* is a *large* table'. The judgment, apparently, has its basis in the perception of the presence of two distinct qualities—largeness, *i.e.*, extension, and unity—in one and the same thing, *viz.*, a table. Thus in being predicated of the table unity is predicated of what is perceived as extended. But the table could not be perceived as extended if it were merely a number of atoms existing together, for atoms, by common consent, are devoid of extension. The table, thus, turns out to be a real concrete unity, and not a manifold appearing as a unity.

Here, again, it may be contended that, when the table is judged as large, there is no reference to extension as an intrinsic quality of it, for extension as such can have no existence in the absolute sense ; what we call extension in common parlance is really a dimensional differentium—a sort

[65] . . . . *teṣāṃ mate śabdādayo 'pi sañcitā eva.* NVTT., p. 276.

of excess (*atiśaya*) in the extent of 'spread-outness'—which a particular group of atoms is capable of exhibiting only by being contrasted with another. A unitary whole, therefore, is as illusory as its extension.

The contention, however, appears to contradict itself by assuming that nothing is intrinsically extended, for such an assumption is tantamount to a denial of the very possibility of an illusion of extension. If the perception of an assemblage of atoms as an extended thing is an illusion—and it certainly is an illusion, since atoms are unextended—there must be as its basis a veridical perception of something as extended. And what else can be veridically perceived as extended but a thing which has extension as its intrinsic character? When, therefore, extension is predicated of a table, the predication must be supposed to be valid, for there is no special reason to assume that when the table is perceived as an extended thing, it is perceived as what it is not. And to say that the table is extended is to admit that it is *one continuous* thing as opposed to many discontinuous units somehow forming themselves into what is no more than an aggregate.[66]

Moreover, if a body were only an aggregate of atoms, the distinctive class-character (*jāti*) of anything could not be cognized, and thus every thing would admit of being perceived as every other thing. The Buddhist, of course, does not believe in an objectively real class-character or universal, but he believes in the ideality of it at any rate; otherwise there would be no basis for the distinction of one class of things from another. Now the knowledge of a class-character or universal is possible only if there is a perception of its locus (*adhikaraṇa*), *i.e.*, of a particular thing which it qualifies and in which it inheres. But, on the Buddhist view, there can be no locus of a universal except the order of atoms, and atoms are imperceptible. Even if it be granted that a plurality of atoms is perceptible, the universal still remains outside the sphere of perceptual experience. Take, for instance, the tree-universal

[66] NBh., II. i. 36.

(*vṛkṣatvajāti*). It is supposed to be perceivable through the perception of a definite group of atoms, which constitutes its locus and revealing medium (*vyañjaka*). But no group of atoms is capable of being perceived in its entirety on any particular occasion, for a sense-organ cannot come into contact with all its parts at one and the same time. It may be contended that the universal is perceived in respect of only that part of the group with which the sense-organ is in contact. But this would make the tree-universal perceivable in respect of every part of the tree, for it is quite possible for the sense-organ to come into contact with the different parts in succession. Each of the parts, thus, would be capable of participating in the tree-universal, and there would be as many trees as there are parts in a tree. The Nyāya-Vaiśeṣika theory, however, is completely free from an absurdity of this type, for it rules out the possibility of any direct relation between parts and a universal by which the whole composed of them is characterized. According to this theory, each of the parts is only a medium in and through which the whole is perceived ; and since it is the whole (and not the order of atoms) which participates in the universal and is thus the member of a class, there can be neither any possibility of mistaking the part of a body for the body itself, nor any difficulty in distinguishing a body of one kind from that of another.[67]

5. Antinomies Examined

The idea of a whole as a substantive real has been subjected to elaborate dialectical criticism by the Buddhist nihilist (śūnyavādin). A material object as a single concrete whole is, it is contended, inconceivable because it is self-contradictory. The Buddhist indicates a number of antinomies which according to him are inevitable in any realistic conception of a whole. Let us state the arguments by which the antinomies are supported.[68]

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[67] NV., II. i. 36, pp. 250-251.

[68] ATV., p. 553. Also *vide* ATVS., p. 554, ATVBh., p. 556, and ATVD., p. 557.

(*i*) The whole is not independent of an 'other' (*parā-napekṣa*). If it were, it could have no beginning in time; but in that case it would be either an uncaused fact like *ākāśa* which exists for all time, or a pure fiction like a square circle which exists at no time.

(*ii*) Nor is the whole dependent upon an 'other' (*parāpekṣa*). If it were, it would be a contingent thing—a product owing its being to an antecedent condition. Such a whole, however, must be supposed either to exist or not to exist before it is produced. If it exists, production is meaningless, for what is already existent cannot be spoken of as coming into existence. And, if, on the contrary, it does not exist, production is impossible, for what is non-existent is indistinguishable from an unreal fiction like a square circle and cannot therefore be brought into existence by any cause. So, if the whole were dependent upon an 'other', it would be a case of one and the same thing being distinct from both the existent and the non-existent.

(*iii*) There cannot be only one whole. If there were only one whole, we could not have perceived so many bodies; all material things, in other words, would appear as a single fact, with their distinctions from one another completely obliterated.

(*iv*) Nor can there be a plurality of wholes. If there were many wholes, they would be *veridically* perceived as numerically different from one another. But the existence of numerical difference (*bheda*) as an objective fact cannot be logically established. The differentiation of things is, therefore, purely illusory.

(*v*) The whole is not an infinitely extended thing. If it were, it would be incapable of movement.

(*iv*) Nor is the whole a finitely extended thing. If it were, it would not admit of being judged affirmatively. A finite thing is necessarily existent in one place and non-existent in another. In logical terminology, it would be the subject of both affirmation and negation at the same time. But this is logically incompatible, for affirmation and negation, being mutually exclusive, cannot simultaneously be predicated of one and the same fact.

These antinomies, however, are declared by Udayana to be absolutely irrelevant because they involve, according to him, assumptions which are unwarranted and arguments which are fallacious. The most obvious objection to these antinomies is that in each of them the Buddhist nihilist has suggested the possibility of denying both of the contradictory alternatives conceivable in respect of the nature of a whole. As a matter of fact, however, both cannot be denied of it. The denial of one necessarily involves the affirmation of the other, for the contradictories not only exclude each other but also between them exhaust all that is. The Naiyāyika, therefore, has no hesitation in accepting as valid the denial of one of the alternatives and rejecting as invalid the denial of the other, in each of the antinomies invented by the Buddhist.[69]

The Naiyāyika regards as favourable to his position the arguments advanced by the Buddhist to arrive at such negative conclusions as that the whole cannot be independent of an 'other', that there cannot be only one whole and that infinite extension cannot be predicated of the whole. But, unlike the Buddhist, the Naiyāyika believes that every negation rests upon and presupposes an affirmation. According to him, therefore, if the whole *is not* independent of an 'other', it is because it *is* dependent for its being upon the parts of which it is composed. The dependence of a whole upon its parts does not involve any absurdity of the nature suggested by the Buddhist, for a thing which is neither existent nor non-existent (as also a thing which is both existent and non-existent) is an unknown X, which runs counter to all the accepted canons of logic.[70]

Again, if, according to the Naiyāyika, there cannot be only one whole, it is because we are constantly aware of the presence of many wholes or bodies around us. Any *a priori* notion of ultimate unity is obviously contradicted in perceptual experience. It is absurd to suggest that the senses which give

[69] *Anayor eka ābhāsaḥ parasparārthapratikṣepakayor ubhayor anābhāsatvānupapatteḥ.* ĀTV., p. 557.

[70] *Sadasattvasya virodhenai 'katra vidhivan niṣedhasyā 'py anupapatteḥ.* ĀTV., p. 559.

us plurality are untrustworthy. For, do we not trust the senses to give us unity where unity really exists? Do we have any doubt as to the oneness, say, of a particular table, when we *see* it as a single thing? On the evidence of perceptual experience, therefore, it has to be admitted that there are many wholes and that these wholes exist as distinct entities. The distinctions of the wholes from one another are as real as the wholes themselves and cannot be explained away by any argument. In sleep or in a trance, we may, by failing to react to distinctions, miss the *significance* that they have for us, but at no time are we in a position to do away with the *existence* of distinctions.

Lastly, the Naiyāyika maintains that a whole cannot be of infinite extension, because it comes into being through the aggregation of a definite number of finitely extended parts. As regards the sceptic's contention that a whole conceived as a finite thing would be incapable of affirmation (*avidheya*), the Naiyāyika accepts it subject to a qualification.

A finite thing is something existing somewhere; it can be neither present nor absent everywhere. When it is absent anywhere it must be present somewhere else. If, therefore, it is incapable of being affirmed, it is so only in relation to a particular place, and not absolutely or universally, for it admits of being affirmed in relation to some other place. To say of a finite thing that it is absolutely incapable of affirmation, is to make it indistinguishable from a pure fiction like a square circle which exists nowhere.[71] But, here, the sceptic contends that affirmation and negation, being contradictories, are exclusive of each other, so that what is the subject of affirmation (*vidheya*) can never be subject to negation (*pratiṣedhya*). The Naiyāyika, however, differs from the sceptic in his conception of the law of contradiction. It is true, he urges, that affirmation and negation *per se* are mutually exclusive, but this only means that what is the subject of affirmation cannot partake of the

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[71] *Na hi yad avyāpakaṃ tat sarvatrā 'vidheyaṃ. Kvacid astī 'ty avyāpakārthaḥ, sarvat[illegible]nā 'stī 'ti cā'vidheyārthaḥ. Ibid.*, p. 583.

nature of negation (*pratiṣedhasvabhāvatā*). The subject of affirmation is what is posited as existent, and what is posited as existent is necessarily positive, because it can exist by being something, and not by being nothing. Naturally it cannot assume a negative character, for that would involve the contradiction of its own intrinsic positivity. There is, however, no contradiction in the subject of affirmation being the subject of negation as well.[72] Contradiction between affirmation and negation arises in respect of a common subject, only with reference to the same place and not with reference to different places. There is thus no contradiction between 'My brother is' or 'My brother is here' and 'My brother is not there'.[73] So also on account of difference in its relation to quality, action or time, the same thing can be subject to both affirmation and negation. There is, for instance, no contradiction between the propositions, 'The pen is' or 'The pen is red' and 'The pen is not white', 'The cow is' or 'The cow ruminates' and 'The cow is not running', 'It is hot in the afternoon' and 'It is not hot in the morning'.[74]

The difference between the realist and the nihilist proceeds from a fundamental difference in their attitude towards the so-called laws of thought. The law of contradiction is *a priori* held to be true between being as such and non-being as such. But so far as being and non-being are exemplified in concrete facts of reality, the contradiction between them must, according to the realist, be ascertained from the actual observation of the behaviour of things and cannot be known *a priori*. Being and non-being, however, understood in an absolute reference, are mere abstractions, or at most only *ideally* conceivable. The contradiction between them is also ideal. The nihilist starts with this purely logical or formal

[72] *Pratiṣedhasvabhāvatā hi vidheyasya viruddhā, na pratiṣedhapratiyogitā 'pi. Ibid.*, pp. 584-585.

[73] ATVD., p. 586.

[74] *Guṇakarmādyupādhibhedo gṛhyate . . . . vidhipratiṣedhayor upādhibhedena na virodhaḥ.* Nārāyaṇa's commentary on ATV. (ed. CSS.), p. 257.

conception of contradiction and seeks to apply it to concrete reality and comes to grief. Udayana's argument has served to make the issue clear that any *a priori* notion of contradiction must be checked by the corrective supplied by the experience of the behaviour of concrete facts. Thus viewed, the antinomies indicated by the nihilist simply turn out to be figments of the imagination.

We now proceed to consider a few other antinomies which are different in nature from those already examined. The whole is conceived by the Naiyāyika not only as a substantive real, but also as a concrete unity—as a single extended (*sthūla*) thing subsisting in all its parts. The Buddhist realist, on the contrary, maintains that what appears as an extended body is really a manifold of atoms. A real unity, according to the Buddhist, is inconsistent with spatial extension ; for what is intrinsically one is incapable of being characterized by contradictory attributes, while an extended thing is not infrequently found to be so characterized.

The whole as an extended thing, it is contended, may be both perceived and not perceived by the same person, at the same time and in the same place ; for, when it is perceived in connection with one part, it is not perceived in connection with another part which lies outside the visual field.[75]

The Naiyāyika, however, points out that, if one part is perceived and another is not, this does not imply that the whole is both perceived and not perceived. It is not necessary for the perception of the whole that all its parts should be simultaneously perceived. Hence, when one of the parts is perceived, the whole is also perceived, although the other part may remain unperceived. There is thus no antinomy of the nature indicated by the Buddhist, for the contradictory characteristics are predicated of two distinct parts, and not of the whole composed of them.[76]

The second antinomy relates to the possibility of an

[75] ATV., p. 587.
[76] *Ibid.*

extended thing to be only partly covered and thus to be covered and not covered at one and the same time.[77]

This, however, is easily disposed of by the Naiyāyika with his previous argument. What is covered is one part and what is not covered is another part, so that the contradictory predicates are really related to two distinct entities, and not to the whole which is different from either or both of them. According to the Naiyāyika, therefore, the whole may be perceived even when a part is covered, for the other part being not covered is exposed to the view.[78] But, then, the question arises: Why does not the whole look as much extended when a part is covered as when no part is covered, if it is the same whole that is perceived in both the cases? To this the Naiyāyika's answer is that even when the whole is perceived, the perception of its *specific* magnitude depends on the perception of a part that is *sufficiently large.* It cannot be definitely said how large the perceived part is required to be; the only thing that can be said is that it should be large enough to make the perception of the specific magnitude of the whole possible. So when an appreciably large part of the whole is covered, the true magnitude of the whole is not perceived owing to the lack of the requisite condition.[79] But here it may be asked: "How can the whole be perceived at all *minus* its magnitude?" Vācaspati says that the magnitude being only an attribute, the whole which possesses it is different from it, and so the non-perception of its specific determination does not stand in the way of the perception of the whole.[80]

The third antinomy relates to the possibility of the presence and absence of movement in a whole at one and the same time. It is often found that a body does not move even when a part of it, say a hand, moves. The body, in this case, obviously moves in respect of a part of it and does not move in respect of the other part.[81]

[77] SBNT., p. 85.
[78] NLV., p. 125; NVTT., p. 265.
[79] SBNT., p. 85; ATV., p. 588; NLVP., p. 126.
[80] NVTT., p. 266.
[81] SBNT., p. 81.

According to the Naiyāyika, however, there is no contradiction here, for the opposite properties—movement and absence of movement—do not characterize one and the same entity. The movement is found in the hand, and the absence of movement in the body as a whole. The Naiyāyika does not think that the movement of the part necessarily entails the movement of the whole ; for, according to him, the part and the whole are different entities which owe their movement to different causes, and these causes do not always synchronize. The movement of the hand, for instance, is due to a particular kind of volitional impulse, and that of the body to another. One may will to move the hand but not the whole body.[82]

An objection may, however, be raised here : If the whole does not move when a part moves, it means that the whole is composed of two parts, one of which is in motion and the other is not. Such a whole, however, cannot exist ; for the moving part would inevitaply be disjoined from the motionless one, and this would result in the snapping of conjunction between the two parts and in the disruption of the whole composed of them. But the objection is invalid, for the Naiyāyika does not believe that a moving part necessarily gets disjoined from another part in the whole. There are, according to him, two types of disjunction which may be caused by movement—one which is destructive of such conjunction of parts as contributes to the formation of a whole, and the other which is not destructive of such conjunction and which means only the disjunction of a part from the space previously occupied by itself. These two types of disjunction are mutually exclusive and cannot be simultaneously brought about by a single movement in a part. Thus when there is a movement in the hand, it results only in its change of position, and not in the severance of its connection with the body. This is a matter of direct observation ; and no *a priori* argument can falsify the plain evidence of perceptual experience, particularly when there is no independent logical ground to impugn its validity. There is, therefore,

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[82] ATV., p. 588; SBNT., p. 82.

nothing wrong in the supposition that the whole does not move and yet preserves its structure even when one of its parts is in motion.[83]

The fourth antinomy relates to the possibility of the presence and absence of a particular colour in one whole. A piece of cloth, for instance, may be partly red and partly not-red and thus red and not-red at one and the same time.[84]

But the Naiyāyika argues that there is no contradiction here because there is really no redness in the whole or in any part of it. If the whole or a part *appears* as red, that is because of its conjunction with a colouring substance (*rāgidravya-saṃyoga*), by which its true (not-red) colour is eclipsed; the perception of redness in it, therefore, is as illusory as the perception of redness in a crystal associated with a red flower.[85]

The Buddhist contends that the Naiyāyika's explanation offers no real solution to the difficulty. The whole, on the Nyāya view, should be supposed to be conjoined with the colouring substance, not in its entire extension, but only in respect of that part which appears as red. So the presence and absence of conjunction in the same whole involves a contradiction.[86]

To this the Naiyāyika's answer is that conjunction is, by its very nature, sectional in its incidence (*avyāpyavṛtti*); it is incapable of pervading its locus. Conjunction, thus, may be present and absent in the same locus, though in different parts. When, for instance, a man is seated on the top of a tree, he is said to be in conjunction with the tree itself, although the conjunction does not extend over the entire body of the tree—it being present at the top of the tree and absent in other parts. As we have said already, the knowledge whether contradiction exists or not in a particular case, is entirely empirical in character. So, if the presence and absence of conjunction

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[83] NK., p. 155; SBNT., p. 83; ATV., p. 589. Also *vide supra*, pp. 123-125.

[84] SBNT., p. 87.

[85] NVTT., p. 267.

[86] SBNT., p. 88; NVTT., p. 267; ATV., p. 300.

in an extended thing are equally observed facts, there can be no ground for regarding them as contradictory.[87] In fact, the Buddhist also admits that a single cognition apprehends these two characters in a locus ; and if they were contradictory, they could not be present as contents of the same cognition.[88]

The fifth antinomy relates to the possibility of the presence of the whole in more than one part. If the whole be really *one* self-identical thing, which the Naiyāyika thinks it is, it cannot be supposed to exist in different loci at one and the same time. The *raison d'être* of the contradiction is found in the logical necessity of supposing each existing thing to be a distinct entity. Any part of space, thus, exists as a definite fact, which excludes every other part of space. If the different parts of space were not exclusive of one another, each would lack the definiteness without which it could not be what it is. This is also true of the contents of the different spaces. The table before me, for instance, is different from the chair on which I am seated ; and if I place a pen on the table, it cannot be supposed to exist on the chair at the same time. When two loci are mutually exclusive, relation with the one is incompatible with relation with the other. The contradiction between the two relations is absolute, and no appeal to experience is necessary to verify it. It is a mere accident that when the pen is on the table we actually notice its absence on the chair. The pen in question does not exist at the bottom of the Atlantic either ; but to ascertain this fact, it is not necessary that I should perceive the absence of the pen in that place. The pen does not exist on the chair or at the bottom of the Atlantic because, being now on the table, it is incapable of existing anywhere else. Accordingly, since the parts constituting a whole occupy different positions in space, and since the whole is supposed to be undivided in its existence, it must be admitted that the whole existing in one part cannot exist in another part at the same time.[89]

' SBNT., p. 88; NVTT., pp. 267-268.

' NLVK., p. 130.

' TS., verses 609-610; SBNT., p. 90.

The Naiyāyika in reply observes that these *a priori* arguments land the Buddhist realist in self-contradiction. The fundamental question, according to the Naiyāyika, is: Does our perceptual experience provide us with cases of one thing being related to many things? The Naiyāyika answers the question in the affirmative. There is, for instance, no incompatibility in the supposition of a single cause producing a number of effects and thus being related to them? Take the case of a burning lamp; it consumes oil, burns the wick, and illumines a room. Certainly there is no contradiction in this. The Buddhist has argued that the power of producing one particular effect is not incompatible with the power of producing another, because the co-existence of the two powers is not opposed by experience. It is only the absence of the power concerned, and not the presence of another power, that constitutes opposition; in other words, the production of an effect is opposed by the non-production of that effect, and not by the production of another effect.[90] But the Naiyāyika also appeals to the evidence of experience and asserts that the presence of a thing in one place is opposed by its absence in that place and not by its presence in another. So if there is unmistakable evidence of the presence of the whole in different parts (and it has been shown in the foregoing pages that there is such evidence), there can be no justification for repudiating the same. For the sake of consistency the Buddhist must either repudiate the experience itself and all relations, or admit the validity of the experience and also of the relations affirmed by it. And even in the Buddhist theory also, there can be no contradiction in the supposition that a thing may be connected with more than one thing, as the Buddhist realist himself admits that one atom can be simultaneously connected with several atoms, and that one act of sense-perception can be simultaneously directed upon and related to many objects.[91]

[90] SBNT., p. 91.
[91] ATV., pp. 607-608.

CHAPTER XII

CAUSALITY

1. Causality as a Universal and Necessary Principle

The entire metaphysical system of Nyāya-Vaiśeṣika realism has been built upon the principle of causality. Causality is held to be a categorical and universal feature of reality. There cannot be anything which is real and yet incapable of exercising causal function in some way or other. Naturally, therefore, all our discussion of the various metaphysical problems in the foregoing pages has proceeded upon the tacit assumption of the reality and universality of the causal principle.

The principle of causality is that every event has a cause, that whatever happens is made to happen by a cause. It is believed by common sense to be a necessary and self-evident principle, and the Nyāya-Vaiśeṣika does not hesitate to accept the position.

The *a priori* necessity of the causal principle has, however, been challenged by sceptics of all countries. In India, the Cārvāka has maintained that causality is never anything more than an imaginary relation between antecedents and consequents, for it can never be derived directly from perceptual experience, which, according to him, is the only form of valid experience. When, for instance, we observe an event, say *A*, followed by another, say *B*, we perceive nothing more than the antecedence of *A* to *B*; but there is no criterion for us to judge that *A* is the cause, and not simply an accidental antecedent, of *B*.[1] Even if we observe a large number of instances in which *A* is followed by *B*, we shall still not be justified in asserting that *A* is invariably and not accidentally followed by *B*,[2] for the sequence observed so very often in the

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[1] NKuP., pt. I, p. 33.

[2] *Na ca kākatālīyatvādiśaṅkāvyudāsārtham dvitīyādidarśanāpekṣe 'ti vācyam, dvitīyādidarśane 'pi śaṅkātādavasthyāt.*

TC., Vol. II, p. 188.

past may fail under certain possible unforeseen circumstances.[3] It thus follows that no necessary or real connection can be supposed to subsist between the events in question. The Cārvāka, therefore, like Hume, has sought to make out that the commonsense demand for a cause with regard to an event is only due to the habit of *connecting* two events in thought which happen to be found *conjoined* in experience in a large number of instances. There is no logical or ontological *nexus* between the two events ; we simply expect one of them to follow another, because we have got into a habit of experiencing a sequence between them.[4] With the Cārvāka, therefore, as with Hume, the so-called causal relation is the empirical result of association ; it is grounded in our thought, and not in the things. Cause in the sense of an antecedent productive principle is, thus, according to the Cārvāka, a mental fiction ; the so-called axiom that for every event there must be a cause, only a groundless assumption.

A protest against this sceptical analysis of the causal principle is found in all important works of the Nyāya-Vaiśeṣika system. An uncaused event, it is urged, is a contradiction in terms. That there might be an occurrence without a cause is not only positively unthinkable but also intrinsically impossible. It is thus not an issue of a mere psychological inconceivability, which may, as the sceptic contends, be due to a habit of thought engendered by many experiences of a sequence. The real issue is one of an absolute impossibility—which our reason asserts to be a real, ontological impossibility.

Udayana in his *Nyāyakusumāñjali* attacks the sceptical position and brings out the absurdities involved in it by an analysis of its logical implications. The repudiation of

[3] *Śatakṛtvo 'pi taddṛṣṭau vyabhicārasya sambhavāt.*
NM., pt., I, p. 108.

[4] *Bhūyodarśanatas tāvad udeti matir īdṛśī |*
niyato 'yam anene 'ti sakalaprāṇisākṣikā || *Ibid.*, p. 111.
Also *cf.* Hume : *An Enquiry Concerning Human Understanding*, Sec. VII, pt. 2.

causality, he argues, is possible in four different ways and thus can be stated in four different propositions: Firstly, 'There is no cause of an event'; secondly, 'There is no happening of an event'; thirdly, 'An event is produced by itself'; and fourthly, 'An event is produced from a nonentity, *i.e.*, from nothing (*anupākhya*)'.

The first proposition makes the happening of an event independent of a cause and thus cannot offer any explanation as to why the event should not happen always. If it is possible for an event to happen at any time without a cause exercising a positive influence upon its happening, there is nothing to prevent the event from happening at any other time, or, for the matter of that, at all other time. In fact, that an event happens at a particular time (and place) and not at any other, can be explained only by pointing out that there is a cause antecedent to it, which being a determinate fact makes the event determinate.[5]

The second proposition simply denies the problem. If there be no happening, there need be no cause. But the happening of an event is a fact testified to by perceptual experience. We observe an event as coming into existence at some time, and not existing previously to that time. So if the denial of happening has reference to previous time when the event was not yet in existence, there is nothing repugnant in it. But the question is: What makes the previous non-existence cease? Why should there be a transition from non-existence to existence? If it be the nature of the event not to happen (and this was admittedly its nature in the past), it cannot be supposed to happen at any time—not even at the time when it is actually found to come into existence.[6]

The third proposition also fails to make the occurrence of an event intelligible to our reason. If an event were to be produced by itself, it would not be produced at all, because, being non-existent before being produced, it could not con-

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[5] NKu., pt. I, p. 42.
[6] *Ibid.*, pp. 42-43.

ceivably exert any causal influence upon its production.[7] A cause, again, is held to be necessarily antecedent to its effect. A self-caused thing, thus, would have itself as its own antecedent—which is certainly an inconceivable position, for a single self-identical thing cannot be both the antecedent and the consequent.[8] Besides, such an assumption of absolute identity of cause and effect obviously militates against the common experience that for the *production* of a piece of cloth it is the yarns (existing before the production of the cloth) that are requisitioned, and not the cloth itself.[9]

The fourth proposition also involves an absurdity. If the effect were to emerge out of absolute nothingness, there would not be anything to delimit its existence to a determinate time. In other words, if the supposed cause were a nonentity, the effect would admit of being produced at any time, because a nonentity being absolutely incapable of negation is available at all time.[10]

The denial of causality thus makes either of the two absurd issues inevitable, *viz.*, that the event should not come into existence at all, or that it should exist for all time.[11] Udayana, therefore, concludes that the contingency (*kādācitkatva*) of an event cannot be explained if the event were independent of a previous limit (*avadhi*) in the shape of an antecedent fact, or were to follow promiscuously from any antecedent fact.[12] Contingency consists in the subsequent existence of a thing which was not existent before.[13] It does not mean mere relation to a particular (subsequent) time, because even eternal things

[7] *Ibid.*, p. 43

[8] *Ibid.*

[9] NKuP., pt. I, p. 43.

[10] NKu., pt. I, p. 43.

[11] *Nityaṃ sattvam asattvaṃ vā hetor asyā 'napekṣaṇāt |*
apekṣāto hi bhāvānāṃ kādācitkatvasambhavaḥ ||
Dharmakīrti's verse quoted in NVTT., p. 107 and NKuB., p. 7.

[12] *Niravadhitve aniyatāvadhikatve vā kādācitkatvavyāghātāt.*
NKu., pt. I, p. 44.

[13] *Itaḥ pūrvaṃ nā 'sīd idānīm astī 'ti pūrvakālāsattve saty uttarakālasattvaṃ kādācitkatvam.* NKuB., p. 8.

being existent for all time have necessarily a relation to that time. Thus being in relation to a subsequent time, as qualified by previous non-existence, constitutes the contingency of an event. And such cotingency requires a sufficient reason for its being, which is found only in a previous limit i.e., in an antecedent fact which by existing prior to an event determines when it should begin to be. This antecedent fact is styled the cause of the event. The sceptic may aver that a previous limit is not unavailable, as the pre-non-existence (*prāgabhāva*) of the event itself may serve the purpose. But the Naiyāyika points out in reply that the pre-non-existence of the effect alone cannot explain the deterministic character of the causal relation. The pre-non-existence in question is a beginningless fact, and if it were the sole determinant of the event, the latter could take place even long before its time. In fact, the occurrence of the event at a particular moment would be absolutely unaccountable if its cause were present during all the previous time.[14] Moreover, the antecedent presence of other positive facts cannot be left out of account, particularly when their presence and absence are found to be followed by the presence and absence of the event in question.[15]

The Cārvāka sceptic does not believe in the deterministic character of the cause and so does not think that the postulation of the cause is necessary for explaining the contingency of an event. He does not, however, propound any one of the four propositions which have been criticized by Udayana. The position which he maintains is this: An event springs into existence at a particular time, not because there is a cause at work behind it to bring it into existence, but because it is the nature (*svabhāva*) of the event to happen at that time.[16] Things are absolutely uncaused, and so also is their nature. There are things which are eternally existent, such as time and

[14] KKu., pt. I, pp. 45-46.

[15] NKuP., pt. I, p. 45.

[16] *Kāryasyā 'hetukatve 'pi . . . svabhāvād eva kādācitkatvaṃ syāt.* NKuP., pt. I, p. 44. Also *vide* NKuB., p. 9.

space. There are things which are eternally non-existent, such as chimeras. Others are existent and non-existent, existent in their time, and non-existent before and after that time. It is not open to us to question why there should be such a diversity of things. But if we still press the question, the only answer is that it is the nature of things to be what they are and behave as they do.[17] The uncaused is not necessarily beginningless, as the Naiyāyika thinks it is. All things are uncaused, but whether a thing is beginningless or not is determined by its own nature. A real pluralistic universe, such as is conceived by the Naiyāyika, is impossible unless each of its elements is supposed to have a specific individuality (*svarūpaviśeṣa*) and a unique character (*svabhāva*). Many of these elements are admitted to be uncaused even by the Naiyāyika, but they are not all supposed to have one and the same nature. If they were of the same nature, they would not exist as distinct entities. The fact is that the nature of a thing is its exclusive feature ; a thing cannot share its nature with others.[18] Uncausedness is, therefore, only a general description of all things ; it does not touch the nature of any of them ; it is not responsible for what a thing is or is not. It thus appears that, according to the Cārvāka, an event happens spontaneously, that it happens because it being what it is cannot help happening.

It is further pointed out by the Cārvāka that even the advocate of causality has ultimately to take refuge in the theory of natural origination. Thus, although a weaver or his apparatus is as necessary to the production of a cloth as a number of yarns, yet such is the *nature* of the cloth that after being produced it inheres only in the yarns and not in the weaver or his apparatus. The cloth is held to be incapable, by its very nature, of being related by means of inherence to any of

[17] NKuP., pt. I, p. 49.

[18] *Svaniyato dharmaḥ svabhāva ity ucyate.* ' *Tad yadi sarvasya sambhavet svabhāvatvam asādhāraṇatvaṃ no 'papadyate* . . . . *iti svabhāvatvavyāghātaḥ*. *Ibid.*, pp. 49-50.

its causal antecedents except the yarns.[19] Again, a determinate cause is supposed to bring about a determinate effect. A cloth, for instance, is produced from yarns, and a pot from clay. But if it is asked why yarns should be the cause of a cloth and not clay, the advocate of causality can give no answer except that it is the nature of things to behave as they do.[20] If, therefore, the ultimate behaviour of things be believed to find its explanation in the self-contained and self-sufficient nature of the things themselves, there remains no logical necessity for postulating causality as an external fact to account for the contingent character of events.[21]

The theory of spontaneous origination (*svabhāvavāda*), thus, believes in complete indeterminism. No account of causality can succeed in carrying out its objective without a reckoning with this theory. In examining this theory, therefore, we have to consider not only if the Cārvāka has been able to make out a convincing case, but also if indeterminism is itself a justifiable position.

What exactly is the implication of spontaneous happening? It is that we must look for the reason of the happening of an event in the event itself. A thing's nature, therefore, is, according to the sceptic, the only *source* of its behaviour. This behaviour is said to be spontaneous because its source is *within* the thing itself. But here we have a clear suggestion of necessity or compulsion, such as is supposed to be associated with the idea of causation. For, of the two facts—a thing's being what it is and its behaving as it does—the former entails the latter and is thus necessarily related to it. And what is this relation if it is not causality?

The notion of cause is deeply embedded in language and common sense. No one can help thinking of a contingent event except as an effect produced by a cause. If the Cārvāka denies it in the interest of a pet theory of his, the very language in which his denial is couched confutes him. Gautama points

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[19] *Ibid.*, p. 44.

[20] NK., p. 317.

[21] NKuP., pt. I, p. 48.

out that the Cārvāka theory of spontaneous production states nothing more than that something is produced *out of* what is not the cause (*animitta*). The production of a positive effect (*bhāvotpatti*), which is admitted in the statement, is however inconsistent with the repudiaton of a productive cause. If a positive effect (*bhāvakārya*) is supposed to be produced by something other than the cause, then this 'something' must be held to be the cause responsible for the production of the effect.[22] It would, therefore, be wrong to say of an event that it is uncaused.

The sceptic has tried to show that even the defence of causality ultimately resolves itself into an appeal to the uncaused nature of things. Causality, he contends, cannot carry us very far in our quest for the reason of events, for we cannot explain *why* a particular effect should invariably follow a particular cause unless we assume that it is the nature of that effect to do so. The Naiyāyika does not dispute the contention. He, however, maintains that the sceptic does not gain any advantage by emphasizing an obvious truth. The question "Why should yarns be the cause of a cloth?" is as idle as the question "Why should yarns be yarns, or a cloth a cloth?" It is not the ultimate character or individuality of things that requires the principle of causality to explain it. In the last resort, we are bound to come to a point which must be taken to be an ultimate fact and for which no explanation is necessary. Causality comes into request only when a contingent event calls for an explanation. For, as we have seen, the contingency of an event cannot be explained unless the event is affiliated to a determinate causal antecedent.

The belief in causation is almost an instinct with the human mind. Without it, all practical activity would become impossible. Whatever we do we do with a purpose, and a purposive action implies a belief or an expectation that a particular course of action will never fail to be followed by a

[22] NS. and NBh., IV. i. 23.

particular result.[23] Scepticism, however ingenious and powerful, cannot break down this belief. The sceptic is a professional disbeliever, but he gets involved in self-contradiction when he seeks to apply his disbelief universally. As Udayana rightly points out, one can doubt or disbelieve only so long as one does not contradict or stultify one's position as a rational being.[24] It is not legitimate for any one to question the necessity of causal relation when he *invariably* kindles fire to produce smoke, or takes food to satisfy hunger, or uses arguments to carry conviction to the minds of others. The fact is that even the sceptic lives and acts as any rational being does ; he, thus, commits himself to the acceptance of a world in which no event can happen except under conditions with which its happening is necessarily connected.[25]

Again, to maintain that the nature of all things is undetermined or self-determined and that even contingent facts are to be taken for granted, is tantamount to denying that systematic knowledge is possible. If things were absolutely detached events without any connection or law governing them, there could be no basis for scientific and philosophical investigation into their nature and behaviour. But the very fact that science and philosophy have made and are making phenomenal progress in systematizing our knowledge of the world of reality by discovering laws and uniform relations, is proof positive of the unreliability of the theory under consideration.

It may be argued by and on behalf of the sceptic that this criticism is entirely lost upon him, as even the most consistent sceptic does not disbelieve, in so far as he behaves as a practical man of the world, in the empirical validity of causality. While his doubt of causality is based on metaphysical grounds, the criticism of his position is undertaken by the realist from the standpoint of commonsense belief. There is also no necessity

[23] VUp., I. ii. 1.

[24] *Tad eva hy āśaṅkyate yasminn āśaṅkyamāne svakriyāvyāghātādayo doṣā nā 'vataranti 'ti lokamaryādā.* NKu., pt. I, pp. 385-386. Also *vide* TC., Vol. II, pp. 231-232.

[25] NVTT., p. 426 ; TC., Vol. II, pp. 222-224.

for insisting that the belief in causality, which is responsible for even such activities as scientific investigation and philosophical speculation, is anything higher in kind than this commonsense belief. So the repudiation of causality by the sceptic on metaphysical grounds does not affect, much less render impossible, the work of the scientist and the philosopher. It is a truism that such work is dependent upon this commonsense belief, and not upon a metaphysical justification of the same. This has, indeed, been the line of argument adopted by the Cārvāka[26] as well as by Hume[27] in reply to the criticism of those who maintain the reality of causation. The sceptic further contends that an appeal to common sense in philosophical discussions is absolutely out of place, for uncritical common sense can never prevail over a carefully worked out philosophical judgment.

In reply it should be said that the sceptic's theory of absolute indeterminism does not carry conviction, for it is as opposed to common sense as to philosophical judgment. It may be difficult or even impossible to refute the sceptic's arguments, but it is also impossible to believe in their truth. Even if the philosopher persuades himself to believe in his destructive conclusions, he certainly does not stick to that belief in his practical activity. It is quite justifiable if the Naiyāyika or any other advocate of causality regards this as a strong argument against the sceptic's position, and in this he is appealing not to the uncritical belief of common people, but to "a non-inferential but not therefore necessarily an irrational

[26] In the *Tattvasaṅgrahapañjikā* (p. 431), one Purandara, a philosopher of the Cārvāka school, is credited with the statement that the Cārvākas do not deny the validity of the inferences that we ordinarily make in our practical life. A commonsense belief in the principle of causality is thus admitted, for without it even the common inferences and anticipations of our daily life would be impossible.

[27] "My practice, you say, refutes my doubts. But you mistake the purport of my question. As an agent I am satisfied on the point; but as a philosopher, who has some share of curiosity, I will not say scepticism, I want to learn the foundation of this inference." Hume: *An Inquiry concerning Human Understanding*, Sec. IV, pt. 2.

conviction which survives the acid test of philosophical study and criticism."[28] The position would be different if it could be shown that causality is logically impossible. But this cannot be done. Even such thorough-going sceptics as Nāgārjuna and Śrīharṣa who have tried to show the illusoriness of the causal concept admit the psychological and logical impossibility of conceiving an occurrence to take place without a cause.[29] This shows that the concept of cause is not an acquired belief but a conviction inherent in the very constitution of our thought. "All that could be urged, therefore, is not that the belief in causality is untenable, but that there are no arguments adequate to establish its truth. But for many philosophers their inability to rid themselves of this conviction, may be itself an argument, though not . . . . . a conclusive argument, in favour of its substantial truth."[30]

2. The Definition of Cause

Uncritical common sense identifies cause with an objective productive power or with something endowed with such power. The Naiyāyika objects to this view mainly on the ground that it rests on an assumption which is not warranted by empirical evidence. Our experience does not testify to a productive power or to a cause actively producing an effect. It tells us only of antecedents and consequents which do not fail to be antecedents and consequents under all similar conditions. As the Naiyāyika is not prepared to go beyond the empirical data, the law of causation is for him nothing more than a law of sequence. The essence of causality lies, according to him, in the uniformity and necessity of sequence. When, therefore, it is said of an effect that it is dependent upon and determined by a cause, what is meant is that it cannot come into being unless the cause has already been as an antecedent fact.

[28] Ewing: *Idealism*, p. 292.
[29] *Nā 'py ahetutaḥ. Mādhyamikakārikā*, I, 1.
Pūrvasambandhaniyame hetutve tulya eva nau. KK., p. 69.
[30] Ewing: *Idealism*, p. 293.

The Naiyāyika defines a cause as an invariable (*niyata*) and independently necessary (*ananyathāsiddha*) antecedent of an event.[31] There are three important points in this definition, and these may be stated as follows: (*i*) The cause is an *antecedent* to the effect. (*ii*) The antecedence of the cause is *invariable*. (*iii*) The antecedence of the cause is *independently necessary*. Let us consider what these points really imply.

The word 'antecedent' clearly resolves causal relation into one of time. The Naiyāyika does not evidently agree with those who maintain that the cause is only a logical *prius* of the effect and is necessarily synchronous with it. The function of the cause, thus, is to determine the *occurrence* of an event, and not its existence after occurrence. An event can begin to be at a particular time only by succeeding what is regarded as its cause. It is however recognized by the Naiyāyika that there are some cases in which the time relation in question is more than mere succession ; the cause in these cases is not only an antecedent, but has to continue to be present *till* the occurrence of the effect. The presence of clay as the material cause of a pot, is necessary at the moment of the emergence of the pot, for no effect can emerge except as inhering in its material cause. An external object cannot produce a sensuous apprehension of itself without being present when the apprehension arises.

The antecedence of the cause, again, implies its numerical difference from the effect. For it is only when there are two distinct facts that we can have between them a relation of *before* and *after*. The effect, therefore, according to the Naiyāyika, is not the cause revealing itself in a different form, but a creation *de novo*.

But although a cause is necessarily an antecedent, any antecedent is not a cause. An invariable antecedent alone can be a cause. An ass carrying to the potter's shed the clay of which a pot is made, is an antecedent to the pot, but not a

[31] *Ananyathāsiddhaniyatapūrvabhāvitaṃ kāraṇatvam.*
TBh., p. 28; also BhP., verse 15.

cause, for the pot would be made equally well if the clay were brought by the potter's servant ; the ass, in other words, is not a cause because its antecedence to the pot is accidental and not invariable. A causal antecedent is invariable in the sense that it never fails to be an antecedent. If the effect is, the cause must have been ; and if the cause is not, the effect will not be.

But does the invariable antecedence of cause necessarily imply that the effect invariably follows whenever the cause is present? The Naiyāyika says it does not ; if it did, clay could not be regarded as the cause of a pot, for the presence of clay is not invariably followed by a pot. It may, of course, be said that clay alone is not the cause, but clay together with accessories, such as the potter, his stick, etc. But this can only mean that any of these accessories is as necessary for the pot as clay itself. Hence, on this view, if the effect is to follow invariably, the cause must be a complex group—a collocation of all causal antecedents (*sāmagrī*)—which, as Mill says, is "the sum-total of the conditions, positive and negative, taken together". The Naiyāyika regards this causal group as a cause with this peculiarity that the different conditions constituting the group co-operate in such a manner that the effect cannot fail to follow immediately. There can however be no objection from the Nyāya standpoint to regarding any of the constituents as a cause, even though it is not necessarily followed by the effect ; for the property of 'being invariably followed by the effect' is not, on this view, any part of the definition of the cause. Invariable sequence between cause and effect is, thus, a case of their agreement in presence and absence (*anvayavyatireka*). This relation of agreement, however, is non-equipollent (*viṣama*), since the effect is not necessarily present wherever the cause is present. The cause and the effect are invariably related only to the extent that the presence of the effect means the presence of the cause, and that the absence of the cause means the absence of the effect. We can, therefore, infer the cause from the effect, but not *vice versa*.

The term 'invariable' in the definition of cause is intended

to exclude all casual antecedents, which are obviously non-causal. It does not however succeed in excluding all non-causal antecedents, for all invariable antecedents are not causes. Day is not the cause of night. Neither the potter's father nor the colour of clay is the cause of the pot. The Naiyāyika has, therefore, to refine the definition by adding the qualification *ananyathāsiddha*.[32] He thus insists that the cause must be independently necessary to the occurrence of the effect, that its antecedence to the effect must not admit of being accounted for except with reference to the effect. The antecedence of the potter's father to the pot is not causal ; it is due to the father's antecedence to his son, the potter, by whom the pot is produced. The colour of clay is inseparable from it ; so the antecedence of the colour to the pot is inevitable, although it does not account for the production of the pot. Day invariably precedes night without being its cause, for the sequence between the two can be adequately explained by reference to their common cause, *viz.*, the rotation of the earth on its axis opposite the sun.

In order to determine the cause of an event, therefore, our main task is to ascertain and eliminate all antecedents which are not independently necessary for the production of the effect, and which, therefore, are irrelevant and superfluous so far as the production of the effect is concerned. Such antecedents are apparently of many kinds. Some later Naiyāyikas have put them separately under five heads which have been reduced by others to three.[33] Let us see what these are.[34]

(i) That by virtue of which a thing can function as the cause of an event, is an irrelevant antecedent in respect of that

[32] The term *ananyathāsiddha* literally means that which is proved to exist (antecedently) without depending upon another factor, or that which is not accounted for otherwise (than as cause).

[33] Viśvanātha following Vardhamāna mentions five types of *anyathāsiddha* (NKuP., pt. I, pp. 149-154; BhP., verses 19-22). Gaṅgeśa and some later writers recognize only three types (TC.. *Īśvarānumāna*. p. 154; TD., p. 26).

[34] *Vide* SM., pp. 114-118.

event. This refers to the specific class-character of the causal antecedent. Clay can be the cause of a pot only by being clay. In other words, it is the specific class-character 'clayness' which determines the causality of clay in respect of the pot. The clayness is obviously an invariable antecedent to the pot, but not independently; its antecedence to the pot is dependent upon the antecedence of clay, of which it is a necessary content.

(ii) That whose agreement in presence and absence (*anvayavyatireka*) with an event can be known only through such agreement of the cause with it (*i.e.*, the event), is an irrelevant antecedent. Such an antecedent is invariable only by virtue of its being inseparable from the cause. This refers to any special quality (*viśeṣaguṇa*) of the causal antecedent, *e.g.*, the colour of the clay of which a pot is made. Since clay is never without its colour, the antecedence of the colour to the pot follows from the antecedence of clay to it.

These two types of *anyathāsiddha* have for obvious reasons been subsumed by Gaṅgeśa under one head. The specific class-character and the quality of a cause are intimately connected with it by means of the relation of inherence; they are thus indissolubly bound up with it. The antecedence of these to the effect, which is conditional upon their being the necessary accompaniments of the causal antecedent, can have no independent bearing upon the production of the effect.

(iii) That which is known as an antecedent to a particular event only after it has been known to be an antecedent to something else, is an irrelevant antecedent with regard to that event. *Ākāśa*, for instance, is an all-pervading and ever-present entity, and so its antecedence to any event is inevitable; but this does not entitle *ākāśa* to be recognized as the cause of any and every event, because the very knowledge of *ākāśa* is derived from the knowledge of its being the causal antecedent to sound.

(iv) That which comes to be known as an antecedent to a particular event only after its antecedence to the cause of that event is known, is also an irrelevant antecedent. This, in

short, is the cause of the cause. The potter's father is not regarded as the cause of the pot made by his son, though he is the cause of the potter who is the cause of the pot.[35]

These two cases do not differ materially ; in fact, according to Gaṅgeśa, they belong to one type. In either of them, the antecedent is held to be irrelevant to the production of an event because its antecedence to that event is understood only through the knowledge of its antecedence to what is admittedly its own effect. It thus appears that a regularity connecting successive events cannot be regarded as causal if it is known or believed to be derivable from other regularities of sequence.

(v) That which is other than an invariable and necessary antecedent to an event is an irrelevant factor in respect of that event. An ass standing by the potter's shed when a pot is made is not the cause of the pot ; the presence of the ass, even if it be not quite accidental, is not one of those factors which cannot be dispensed with in the matter of the production of a pot.

This last description of *anyathāsiddha,* it appears, is applicable to those special cases which according to Gaṅgeśa form a distinct group—a group in which he includes all such concomitants of the cause as are not connected with it by means of the relation of inherence. If a thing is an antecedent by being an invariable associate of the causal antecedent, it cannot be a cause ; it is not a cause because its presence, though sometimes inevitable, is not indispensable to the production of the effect. The softness of yarns, for instance, though invariably preceding the colour of the cloth, is not the cause of it ; the cause is the colour of the yarns, which, of course, is necessarily concomitant with their softness. The antecedence of the softness of the yarns to the colour of the cloth is not causal, because it is conditional—it being due to the fact that there can be no yarns in which colour and softness do not co-exist.

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[35] The potter's father, however, in his capacity *as a potter,* is held to be the *cause* of a pot.

Although Viśvanātha mentions all the five varieties of irrelevant antecedents explained above, he appears to hold the view that the last variety alone can serve the purpose of the rest. For all conceivable irrelevant and superfluous factors covered by the first four varieties are certainly in excess of the invariable and necessary antecedents held to be responsible for the production of the effect.

We thus see that the fundamental element in the conception of causal antecedence is not merely mechanical invariability but also independent relevancy. Such relevancy follows directly from unconditional necessity. A cause is independently or unconditionally an invariable antecedent ; the only consideration that necessitates the postulation of its presence is that it accounts for the production of the effect. Given its own conditions, clay would no doubt be present anywhere and at any time ; but its invariable antecedence to the pot has a significance which these conditions cannot explain. There is nothing to compel or make inevitable the antecedence of clay to the pot, and yet clay is never found to fail to be present where the pot is made. Clay, thus, is directly relevant to the production of the pot ; it is an antecedent to the pot in its own right as a cause.

3. The Determinants of Causal Relation

The law of causality implies not only that an event must have a cause, but also that a determinate event must have a determinate cause. To say that any kind of event may be due to any kind of cause is to deny causation. Under certain circumstances a pot of a particular kind is found to be produced from clay,; under similar circumstances similar pots do not fail to be produced from clay ; under no circumstances can a pot of the same kind be produced from anything but clay. The relation between clay and the pot as cause and effect is thus a relation of uniform, exceptionless and necessary sequence.

But what is the meaning of qualifying sequence by uniformity or necessity when our experience of sequence appears to be confined only to particulars? What we observe

is one unique particular followed by another unique particular —*this* clay followed by *this* pot, and not by *that* or *any other* pot. Where, then, is the guarantee that a sequence experienced as subsisting between clay and a pot of clay at a particular moment would also subsist between them at any other moment.

The Naiyāyika maintains that though the relation between *this* clay and *this* pot is a relation between two particulars as observed *primâ facie*, it should be understood to obtain between anything that is clay and anything that is a pot of clay. A sequence between two particulars cannot be interpreted as a case of causality unless it is at the same time a case of invariable relation between the universals by which the particulars are characterized. In other words, the causal relation between two particulars is not between two particulars as such, but between them as with their respective generic characters. The fact is that a particular as abstracted from the universal is only an unintelligible symbol, and so the perception of a particular is necessarily the perception of a particular as qualified by the universal.[36] The knowledge of such uniform sequence as determines causal connection cannot, therefore, be concerned merely with brute particulars ; it is concerned with universals also, but only in so far as they are qualifying elements in the particulars concerned. Thus any clay, inasmuch as it possesses the universal 'clayness', is entitled, under certain conditions, to be the cause of a pot of clay. In fact, unless we take invariable sequence with reference to universals we cannot explain the notion of a potential (*svarūpayogya*) cause. A potential cause —often a remote and unseen particular—is not actually perceived as exercising causal function, and yet it is believed to possess causal efficiency because of its sharing a common universal (*i.e.*, class-character) with the active (*phalopadhāyaka*) causes which are actually perceived as antecedents to the effects

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[36] *Yathā rūpādyasambaddhā na vyaktir upalabhyate |*
tathai 'va jātyayukte 'ti kā te vyasanasantatiḥ ||
NM., pt. I, p. 286.

produced by them.[37] The universal constitutes the 'what' of the particular ; and though our knowledge of the 'what' is always confined to a particular 'this', and though we cannot make a prediction about the unique particular that will come into being, still the very fact that the particular is necessarily an embodiment of the universal 'what', makes it imperative that it will behave in accordance with the law which has been found to govern other particulars of its class. Thus, though we do not know what a particular specimen of clay in its unique individuality will be like, we can unhesitatingly assert that, just because it is clay, it will not fail to produce a pot of clay, provided other conditions favourable to such production are present.

From what has been said above, it is clear that the term 'universal' in the present context stands for what may be called 'a proximate universal' (*avāntarajāti*). A proximate universal is generally the least extensive of all universals which an individual is capable of participating in at a time. It is only by being qualified by such a universal that a thing is a thing with a *distinctive* character, and it is by virtue of this character that the thing can have a *special* causal efficiency. Clay, for instance, has existence (*sattā*) or substancehood (*dravyatva*), which universal it shares with any existent or substance, *e.g.*, an ass. Clay has also its proximate universal, clayness, which it shares with none ; only all specimens of clay are characterized as clay. If clay were the cause of a pot in the character of an existent or a substance, an ass might as well be claimed to be the cause of a pot, for an ass is just as much an existent or a substance as clay is. Clay, therefore, is the cause of a pot in the character of a thing qualified by the universal clayness. Clayness, thus, is that particular aspect or characteristic of clay in respect of which alone it can be the cause of the pot.[38] Clayness, in this sense, is regarded as the determinant of the causality (*kāraṇatāvacchedaka*) of clay with

[37] Din., p. 106.

[38] Cit., p. 316; RR., p. 106.

regard to anything that is made of it. And what is true of clay is also true of the pot. The pot is the effect of clay by virtue of its being a pot, and not because it is qualified by substancehood or existence. It thus appears that the causal relation which connects clay with a pot connects a cause of the *nature* of clay with an effect of the *nature* of a pot. The connection is between clay as such and a pot-of-clay as such, and cannot, therefore, hold between anything that is not clay and a pot of clay.

But here a question confronts us: Each universal embraces an indefinite number of particulars; so if uniform sequence cannot be understood without reference to universals, it seems impossible that we should ever be able to determine which particular cause will produce which particular effect. There will thus be no ground for distinguishing one particular clay from another, or one particular pot from another, in any particular context of causation.

To this the Naiyāyika replies that the determination of causal relation is possible only on the basis of experience. We do not even suspect two particulars to be causally related unless we actually observe one of them as preceding another. *This* clay is the cause of *this* pot, not only because *this* clay is clay and *this* pot is a pot, but also because *this* clay, and *not any other,* is *found* to be an immediate antecedent to *this* pot.

But, then, it may be asked: What is there to prevent one individual from being regarded as the cause of an indefinite number of events of a particular class occurring immediately after? Why, again, should we connect the antecedent with one rather than any other immediate consequent?

The difficulty is easily met by the Naiyāyika who urges that causal relation should be understood as a relation which is determinate in respect of both time and place; it is not only a relation of sequence, but also of co-existence (*sāmānādhikaraṇya*). The cause is required to be present in the locus of the effect immediately before the effect happens.[39] An

[39] *Avyavahitapūrvakālāvacchedena kāryadeśe sattvam.* TK., p. 7.

immediate antecedent,[40] therefore, cannot conceivably be causal in respect of more than one consequent at a time. A plurality of effects cannot be supposed to follow simultaneously from one particular cause, as it is not possible for the cause in question to be present in the loci of all the effects at the moment immediately preceding their happening. According to the Naiyāyika, therefore, every particular causal entity is the cause of a particular effect-entity, and not of any other, because they are related as cause and effect only within the determinate temporal and spatial setting within which both of them are rigidly enclosed.

The question of co-existence of cause and effect demands more than a passing notice. It is obvious enough that a bomb exploding in London does not destroy a house in Calcutta, or that a desire conceived by me does not induce my neighbour to activity. In fact, two events cannot be brought into a connection of an objectively valid nature, such as is involved in the notion of causation, unless each of them can be shown to exist in the locus of the other. But existing or abiding in a locus can have no definite sense unless the manner of existence is definitely stated. It is quite possible for different things to exist simultaneously in the same locus in different ways and thus to stand in different relations to it. The Neo-Naiyāyikas have therefore thought it necessary to insist that the existence of the cause in the locus of the effect, or that of the effect in the locus of the cause should always be understood in terms of a specific relation. A thing can be a cause of a particular kind only by bearing a particular kind of relation to the locus of the effect ; any kind of relation will not do.

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[40] A remote antecedent may or may not be invariable. That antecedent alone is necessarily invariable (*niyata*) which immediately precedes the effect in the locus in which the effect emerges. Immediateness (*avyavahitatva*) of antecedence is thus a necessary implication of invariableness and has not, therefore, been mentioned as an independent factor in the definition of cause. *Vide Āloka* on TC., (ed. BI.), *Īśvarānumāna*, p. 154.

Let us try to understand the position by an appeal to the familiar example of clay and the pot. Clay, we know, is the material cause of the pot. The locus of the pot is clay, to which the pot is related by means of inherence (*samavāya*) ; and in this locus the material cause, *viz.*, clay, subsists by the relation of identity (*tādātmya*). A relation of identity with the locus in which the pot abides by inherence, is what determines the material causality of clay with regard to the pot. Without being determined by this particular relation nothing can be a material cause. There may be a thousand and one immediate antecedents to the pot, which are other than clay and which naturally bear various kinds of relations to clay, but not one of identity ; none of these antecedents, therefore, can be the material cause of the pot. The importance of this emphasis on relation as a determinant of causality (*kāraṇatāvacchedaka*) will be clearer if we analyse the implications of a specific causal statement, such as 'that *this* clay is the material cause of *this* pot'. Any clay, because of its being characterized by the universal 'clayness', is entitled to be the material cause of a pot. But any clay cannot be the material cause of *this* pot unless it bears a relation of identity to *this* clay in which *this* pot inheres. If this reference to a specific relation were dropped, we would be involved in an absurdity ; for we would have as the material cause of *this* pot not only *this* clay, but any immediately antecedent clay, which, though not identical with *this* clay, might be shown to have some sort of relation to it—which, for instance, might be connected with it by conjunction (*saṃyoga*), or by the temporal relation (*kālikasambandha*) of simultaneity. It thus turns out that *this* clay alone is the material cause of *this* pot because no clay other than *this* clay is identical with the locus in which *this* pot inheres. Similarly, the relation of inherence with *this* clay, *i.e.*, with the locus in which the material cause subsists by way of identity, is what determines the effect-character (*kāryatā*) of the *this* pot. *This* clay may be an immediate antecedent to any number of pots, but only one of them, *viz.*, *this* pot, is its effect, because no pot other than *this* one is related to it by inherence.

4. Classification of Causes

The Nyāya-Vaiśeṣika system distinguishes three kinds of causes, *viz.*, (i) the material or inherent or constitutive cause (*samavāyikāraṇa*), (ii) the non-material cause (*asamavāyikāraṇa*), and (iii) whatever differs from the two, called *nimittakāraṇa*—a term which is difficult to translate by an exact equivalent in English: we propose to render it as accessory cause.

The material cause is defined as that in which the effect abides by the relation of inherence (*samavāya*).[41] It is productive of the effect in the sense that the effect cannot come into being except as inhering in it. The yarns are the material cause of the cloth, since, as components (*avayava*) of the cloth, they are not only responsible for its production but also constitute the substratum in which it subsists by inherence.

The material cause is necessarily a substance, for an effect can inhere in substance alone.[42] The material cause may have for its effect a substance or a quality or an action. The yarns, for instance, are held to be the material cause not only of the cloth that is made out of them, but also of their own colour and of their dropping down from the hand of a careless weaver.

To inhere in something is to be contained in and supported by it. To say, therefore, that the effect inheres in its material cause is to posit that the material cause is the originating and abiding ground of the effect and that the effect cannot exist apart from it. The Nyāya-Vaiśeṣika system apparently does not conceive of the material cause as the mere stuff or material (*upādāna*) out of which the effect is fashioned. There is nothing that can function as the constituent of a quality or an action, though no quality or action can arise independently of its material cause, *i.e.*, the substance that possesses it. If the parts of a whole are considered to be the material cause, it is not because they are the constituents of the whole, but because the whole subsists in these constituents and is sustained by them. It

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41 TBh., p. 28.

42 VS., X. ii. 1.

thus appears that of all the antecedents which are concurrent factors in the production of an effect, that alone is the material cause which, besides originating the effect as intimately connected with itself, *persists* as the supportive substratum (*ādhāra*) of the effect as long as the latter exists. In other words, it is the 'existent continuant' which precedes, originates, underlies, sustains and even survives the effect.

The non-material cause is that which produces its effect by being intimately connected (*pratyāsanna*) with the material cause of that effect.[43] It is of two kinds according as the nature of its relation to the material cause varies. One kind of non-material cause is related to the material cause of its effect directly by means of inherence, as when the conjunction of the yarns is held to be the non-material cause of the cloth. The conjunction of the yarns is a quality of the yarns and therefore inheres in them. The yarns are thus the material cause of their quality of conjunction, and also of the cloth that is made out of them ; so that both the effect, *viz.*, the cloth, and the non-material cause, *viz.*, the conjunction, are equally inherent in the material cause, *viz.*, the yarns. So the relation between the effect and the non-material cause, in this case, is one of co-inherence in the common material cause.[44]

The second kind of non-material cause is indirectly connected with the material cause by a rather complex relation arising from its inherence in that in which the latter also inheres. An example of this kind is the colour of the yarns which is held to be the non-material cause of the colour of the cloth. The colour of the cloth inheres in its own material cause, *viz.*, the cloth ; the cloth, in its turn, inheres in the yarns, and so also does the colour of the yarns. There is thus a relation of co-inherence in a common locus between the colour of the yarns and the cloth, respectively the non-material and the material causes of the effect, *viz.*, the cloth's colour. So the effect, in this case, is related to the non-material cause

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[43] NK., p. 101; TBh., p. 31.

[44] NK., p. 101 ; SM., pp. 110-112.

through the medium of an indirect relation subsisting between its material and non-material causes.[45]

In the definition of the non-material cause certain qualities have been excluded from its purview. The most striking exclusion is that of the special qualities of the soul, *viz.*, cognition, desire and the like. When cognition produces desire, it inheres in a locus in which desire also comes to inhere—the soul being the common locus for both of them. Cognition, however, is not regarded as the non-material cause of desire because that would only result in adding another non-material cause to the one which has to be recognized as the common non-material cause of all psychical phenomena. That is the conjunction of the soul with the mind but for which no psychical effect can come into being. There is another reason for the exclusion of the special qualities of the soul. It is an admitted fact that the non-material cause produces its effect only in the place of its origin, or in its immediate neighbourhood. If the special qualities of the soul were the non-material cause of their effects, the merit (*dharma*) and demerit (*adharma*) of the soul would not produce their reward and retribution in a different region. If, however, they are regarded as *nimittakāraṇa*, no such difficulty would arise.[46]

We propose now to discuss the logical necessity for postulating the non-material cause as a distinct type. Agreement in absence (*vyatireka*), which is held to be the decisive factor in the determination of causality, is not lacking in the case of the relation between the non-material cause and its effect. The liquidation of the non-material cause is invariably found to be followed by the destruction of the effected substance even when the material cause is kept intact. When the yarns are taken out from a cloth and their conjunction is consequently destroyed, the cloth also disappears. It thus follows that for the emergence and existence of the cloth as

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[45] *Ibid.*

[46] NK., p. 101.

also for its having a definite form as distinguished from that of, say, a bundle of yarns, it is not enough that the yarns should merely exist ; they are also required to be conjoined in a definite order.

Again, the specific quality belonging to the parts, say the red colour or soft touch of yarns, may similarly be shown to be the non-material cause of a similar but numerically different quality in the whole, *viz.*, the cloth, composed of those parts. The denial of this will leave the quality of the effect, *i.e.*, of the whole, causally undetermined. The fact is that even when there is a material cause as well as a *nimitta* of this quality, the law of the homogeneity of cause and effect would demand for it a like condition (*sajātīyakāraṇa*), which is furnished by the corresponding quality in the cause, *i.e.*, the parts. No coloured substance can therefore be supposed to be produced from colourless stuff, no red cloth from a mass of white yarns.

In like manner, the causality of motion in respect of quality or of quality in respect of motion may be proved. Motion is the non-material cause of the quality of conjunction, and impact (*abhighāta*), which is a form of conjunction, is the non-material cause of motion. A peculiarity of this type of non-material cause is that its destruction does not entail the destruction of the effect.

The admission of the non-material cause is a special feature of the Nyāya-Vaiśeṣika system, which explains every case of production of a substance as a case of fresh combination of parts forming a new whole. The parts have little significance when taken by themselves, apart from their participation in the whole. But they can participate in the whole only through being joined together, *i.e.*, through the mediation of what is called the non-material cause. All bodies are ultimately composed of atoms ; but while atoms are eternal and homogeneous units, bodies are transient and have various forms. This is explicable only on the supposition that atoms combine in various arrangements and that these arrangements are transient

phenomena. The non-material cause thus appears to be an extremely necessary factor with a peculiar position and function in the process of causation. It explains the emergence of heterogeneous bodies out of more or less homogeneous constituents. It is intimately bound up with the material cause, but at the same time it sustains the product and determines its distinctive form and character.

The accessory cause is different from the two kinds of causes mentioned above.[47] It is neither the sustaining locus of an effect nor anything bound up with the existence of the effect through the medium of that locus—which two are the characteristics of the material and non-material causes respectively. The accessory cause is a purely extrinsic factor, though indispensable to the production of the effect. It must however bear a definite relation to the effect, for, as we have seen already, causality is unintelligible except in terms of specific relations. The precise nature of the relation between this type of cause and the effect is to be understood differently in different circumstances. The accessory cause is thus a comprehensive class under which are included the agent, the instrumental factor, the auxiliaries, and even the negative conditions, such as the pre-non-existence of the effect and the absence of obstacles. The weaver or his apparatus or his operation or any other factor necessary for the production of a piece of cloth—excepting, of course, the yarns and their conjunction—is the accessory cause of the cloth.

Of the concurrent factors necessary for an effect, the most important, on the Nyāya view, is what is called the instrumental cause (*karaṇa*), which is distinguished from other causes on account of its special efficiency. The instrumental cause, according to Uddyotakara, is the principal (*pradhāna*) cause;[48] it is, as Keśava Miśra says, the cause *par excellence*.[49] It

[47] TBh., p. 31.

[48] *Asādhāraṇakāraṇatvāt pradhānam, prādhānyāc ca sādhakatamatvenā 'bhidhīyate*. NV., I. i. 1, p. 8.

[49] *Prakṛṣṭaṃ kāraṇam*. TBh., p. 28.

agrees with other causes in being a condition without which the effect does not occur, but it is peculiar (*asādhāraṇa*) in the sense that its presence is necessarily and immediately followed by the occurrence of the effect. The instrumental cause is thus chronologically the last of a series of conditions (*caramakāraṇa*) necessary for an effect ; it stands for that special circumstance —technically called function (*vyāpāra*)—which produces the effect without the help of any other circumstance or function.[50] On this view, then, the instrumental cause of a finished piece of cloth is not the loom or the shuttle, but the last conjunctions (*caramabhāvinaḥ saṃyogabhedāḥ*) of the yarns that constitute the cloth. In the case of a person's death through being shot in the heart, the instrumental cause is not the bullet, but the piercing of the heart by the bullet.

This view of the instrumental cause is not accepted by the Neo-Naiyāyika. According to him, nothing can be instrumental in the production of an effect, without having some sort of function or operation (*vyāpāra*) mediating between itself and its effect. Function is defined as that which being produced by something helps the production of the effect of that thing.[51] The instrumental cause is therefore, strictly speaking, not the immediate cause, though its immediacy to the effect is sought to be maintained on the ground that its functioning being a part of it does not detach it from its effect.[52] So the instrumental cause is defined as the special cause which is marked by the possession of a function that is immediately followed by the occurrence of the effect.[53] Thus the instrumental cause of the smashing of an earthen pot is not the blow of the hammer, but the hammer which actually deals the blow.

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[50] *Evañ ca tadanukūlavyāpāram advārīkṛtya tajjanakatvaṃ phalāyogavyavacchinnakāraṇatvaṃ paryavasitaṃ karaṇatvam iti labdham. Evañ cai 'tanmate carama-kāraṇatvam eva karaṇatvam.* Bhavānanda : *Kārakacakra* (ed. Calcutta, 1937), pp. 87-88. *Vide* NVTT., p. 65.

[51] *Tajjanyatve sati tajjanyajanako vyāpāraḥ.* TK., p. 6.

[52] The relevant dictum is *svāṅgam avyavadhāyakam.*

[53] *Phalāyogavyavacchinnavyāpāravatkāraṇatvaṃ karaṇatvaṃ.* Gadādhara's commentary on *Anumitidīdhiti* (ed. CSS.), p. 11.

5. The Problem of Plurality of Causes

Is it possible for the same event to have different causes on different occasions? This is the problem suggested by the term 'Plurality of Causes', and it has, as we shall see, an important bearing upon the logical and practical consequences of causality.

Fire, apparently, has different causes ; it may be produced by blowing on heated grass, or by the friction of hard substances like flint and steel, or by focussing solar rays through a lens on a combustible substance. The plurality of causes for a single substance seems, therefore, to be an extremely plausible hypothesis supported by empirical evidence.

The most serious objection to this hypothesis is that it cuts away the very ground on which causality is based. We have seen that two things are related as cause and effect not as unique particulars, but as individuals belonging to their respective classes. The class-character of either of them is thus the determinant of its relation to the other. If, however, a thing of a particular kind is supposed to be capable of being produced on different occasions by causes of different kinds, it means that there is no invariable relation connecting the class-character of the thing with that of any of its alternative causes. But to accept this position is to say that the determinate class-character of the effect is not determined by that of the cause, which, again, is the same thing as to say that the effect is absolutely self-determined in respect of its class-character. It thus turns out that an effect is a thing of a particular kind not because it is produced by a particular cause, but just because it is an effect.[54] But if it is granted that 'being an effect' is the sole determinant of the class-character of an effect, there is no reason why a particular effect should partake of the character of one class rather than of another, or why an effect produced by one kind of cause rather than by another should partake of the character of a particular class. We might very

[54] *Kāraṇasya jātiniyamābhāve kāryajātiniyamo hetvabhāvena vyāhanyeta.* NKuB., p. 12.

well be asked to assume that each effect partakes of the characters of all classes, or that all effects partake of the character of one class.[55] The position is certainly absurd, and has quite naturally been exploited by the sceptics as a means of repudiating causality.

Among the various schools of thought that have attempted to save the law of causality by denying the possibility of alternative causes, there is one which has made the problem the ground for establishng its theory of cause as something endowed with a latent potency or power (*śakti*). The Mīmāṃsaka of the Prābhākara school, who propounds this theory, thinks that the plurality of causes is only apparent, as it is not any of the different antecedent phenomena, but a common power that belongs to all of them, which is *ultimately* responsible for the production of the effect. If fire appears to be caused by different things on different occasions, it is because these things share a power which is favourable to the generation of fire. Whatever possesses this power is, by virtue of it, a possible cause of fire.

Power, according to the Prābhākara, is a supersensible entity ; so its existence can be established only by means of inference. An effect is normally seen to follow whenever its cause—the group of all necessary conditions acting together—is present. But it is sometimes found that when a foreign element is added to this group, its causal activity is mysteriously interfered with, and the effect is not produced. The foreign element, the presence of which frustrates the production of the effect, functions as a sort of counteracting agent (*pratibandhaka*). Now this situation presents an anomaly which, according to the Prābhākara, is inexplicable except on the hypothesis of power as a factor helping the production of the effect. The counteracting agent does not apparently produce any outwardly observable injury upon the causal factors, *i.e.*, the conditions constituting the causal group ; it has therefore to be assumed that the injury is effected in their inner,

[55] NKu pt. I p. 57

invisible nature as power. In other words, it must be supposed that the power inherent in the constituents of the causal group is impaired or made inactive. In fact, the activity of the causal power is restored and the expected effect is seen to be produced as soon as the counteracting agent is withdrawn, or its influence neutralized by the introduction of some other element.[56] It thus follows, says the Prābhākara, that the various antecedent phenomena, which are regarded as alternative causes of an event, are none of them causes independently of the causal power; they are nothing but the vehicles of the causal power, and it is only in so far as they are enlivened by this power, that they are, on different occasions, relevant to the occurrence of the event. These causal antecedents may be of diverse kinds, and yet it is the same kind of event that is produced by them, for the power to produce that particular kind of event, which makes them function as causes, is a self-identical principle running through all of them. Thus the postulation of causal power is, on the Prābhākara view, a necessary consequence of the law of causality.

The Naiyāyika, as an empiricist, is chary of assuming a transcendent entity unless the assumption of it is made inevitable by the necessity of explaining empirical data. He does not believe in the plurality of causes, and at the same time he is not convinced of the necessity of postulating causal power as affording a real solution of the problem. He offers a solution which, as we shall presently see, is free from the postulation of a supersensible, mysterious entity.

The Naiyāyika holds that the doctrine of power, apart from the fact that it introduces an air of mystery into the causal concept, is fraught with grave danger to the very law of causation which it seeks to explain and justify. If a self-identical causal power could inhere in things of diverse kinds and make them function as the means of the production of one definite kind of result, it would mean that any inference based

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[56] PP., p. 81.

on causal relation is impossible. We could not, for instance, argue from the result as effect to any particular means as cause.[57] For instance, if different things—a piece of flint, a quantity of heated grass, a lens, etc.—possessed the power to produce fire, fire might be produced with the help of any one of them, so that the occurrence of fire would not prove that any one more than another was a causal antecedent to it. Likewise, the absence of a particular cause would not be the logical ground for inferring the absence of an effect of the kind produced by it, for the effect might as well be produced by some other entity possessing the power to produce an effect of that kind.[58] In fact, even in cases where we have no empirical evidence for the knowledge of the plurality of causes, we can never be certain whether any of the perceived antecedents to an event is its cause or whether something invisible is the cause. Accordingly we could always expect a particular effect to emerge, although the known causes might be absent, on the suspicion that there might happen to be present something in which the *power* to produce that effect lurked undetected.

The Prābhākara, in defence, pleads that such a contingency does not arise, for the power helpful to the production of a particular effect is not, according to him, such a thing as may be present anywhere and everywhere. It is only when causal relation has, on the evidence of unimpeachable experience, been established between a number of antecedents of different kinds and a particular consequent, that they are supposed to possess a power by virtue of which they can function as causes with regard to their common effect. So the postulation of power does not precede, but follows, the actual ascertainment of cause.

But the question is: How is the cause to be ascertained? A cause, we know, is what is *essential* to the production of an effect; but the Prābhākara cannot point to any antecedent to an event, which is its cause by this test. What we actually

[57] NKu., pt. I, p. 58.
[58] *Ibid.*

observe as an antecedent to an event is a *mere* antecedent and not a cause, for its absence does not, on the Prābhākara view, entail the absence of the event—it being quite possible for the event in question to be produced by some other antecedents. The Prābhākara thus makes his position untenable by making the ascription of causal power to a thing, dependent upon the discovery of the thing as a cause.[59]

The question also arises if this causal power itself is an effect or not. If it is held to be a product either of the things in which it inheres, or of the respective causes of its loci, this will involve a plurality of causes. If, on the other hand, it is held to be uncaused, it must be either co-eval with, or antecedent to, the loci ; but the result in either case will be equally unsatisfactory. On the first alternative, the causal power will be an uncaused event having a definite origin in time, which is a contradiction in terms. And power existing antecedently to, and therefore independently of, its locus, which is implied by the second alternative, presents an obvious absurdity. The Naiyāyika, therefore, concludes that the postulation of a metempirical causal power is not only devoid of logical justification, but also defeats the very purpose which it is intended to serve. Power as a separate entity has been assumed to solve the riddle of the plurality of causes ; but, as we have seen, it not only fails to solve the riddle, but ends in making causal connections impossible of ascertainment.

The Naiyāyika seeks to solve the problem by his theory that the effect of each cause is different in kind from that of another. Thus the fire that is produced by the friction of hard substances is, according to him, different from that produced either by blowing on heated grass or by focussing solar rays through a lens. The diversity of fires is due to difference in their specific generic characters (*avāntarajāti*) ; and though our preceptual experience does not ordinarily acquaint us with this difference, it has to be inferred on the ground of the difference of the cause. The different fires, though they all belong to the

[59] *Ibid.*, p. 59; NKuB., p. 13.

genus of fire, are members of the different species that fall under the genus. If these fires appear to be indistinguishable, that is due to ignorance and lack of analysis. In fact, practical indistinguishability does not argue the absence of real distinction. So, according to the Naiyāyika, wherever there appears to be a plurality of causes, the plurality disappears before a close investigation into the nature of the effect.[60]

It may, however, be contended that, if, to obviate the difficulty of the plurality of causes, the effects are sought to be particularized on the basis of distinctive properties not ascertainable except by a meticulous scrutiny, it will not be possible for an ordinary man with no knowledge of those properties to argue from the effect to the cause. It may, for instance, be open to suspicion that it is not smoke as such that is the effect of fire, but smoke as characterized by an imperceptible property and therefore distinct from other possible kinds of smoke ; so the inference of fire from an observed case of smoke will not be legitimate.[61] But Udayana points out that there is no justification for this contention, for the Naiyāyika does not believe in the existence of an unproved, supersensible factor. The causal relation between fire and smoke connects fire and smoke as individuals of their respective classes. And since fire and smoke are found to agree invariably in their presence and absence, it is believed that the sequence connecting them is uniform and exceptionless. So it is quite possible to argue from smoke as such to fire as such. Indeed, it is a general rule of induction that the relation of causality is to be understood in respect of the universals as embodied in the particulars. The only cases of exception to this rule are those where a plurality of causes is observed. In such cases causal relation is, as we have seen, restricted to the effects of subordinate classes (*avāntarajāti*), *i.e.*, of the species coming under a genus. There is, however, no reason to depart from the general rule of induction where we do not actually observe

[60] NKuB., p. 14; NKuP., pt. I, p. 60.

[61] NKu., p. 78.

the break-down of uniform sequence through the anomaly of the plurality of causes.[62]

As regards the proof of 'power' as a distinct category, the Naiyāyika holds that the evidence of the action of the counteracting agent is not conclusive. The cause is the 'totality of conditions' necessary for the production of the effect, and the absence of the counteracting agent should be understood as one of these conditions. So if the effect is not seen to be produced when its known positive conditions are associated with the counteracting agent, the failure of production is explainable by the fact that the full collocation of conditions (*sāmagrī*) is not present, as there is at least one condition, *viz.*, the absence of the counteracting agent (*pratibandhakābhāva*), which is not fulfilled. The moon-gem (*candrakāntamaṇi*) is supposed to be a counteracting agent with regard to fire; so fire associated with the moon-gem fails to effect combustion. But that does not affect the causal relation between fire and combustion, because the cause of combustion is not fire alone, but fire as qualified by the absence of the counteracting agent. Again, the presence of the moon-gem does not make fire ineffective if a sun-gem (*sūryakāntamaṇi*), which is supposed to be an antidote to the former, is associated with it.[63] The reason is that the absence of the obstacle conceived as a necessary negative condition of the effect implies the absence of an obstacle that is qualified by the absence of its antidote.[64] This explanation of the character of cause as a complex of conflicting conditions is no doubt very cumbrous, but its justification lies in the fact that even the advocate of the doctrine of power has

[62] *Yatrā kāraṇasāmānyaṃ kāryasāmānyaṃ vyabhicāri dṛśyate tatrai 'va viśiṣya kāraṇtāgrahaḥ. Yatra tu sa na dṛśyate tatro 'pasthitasāmānyenai 'va kāryakāraṇatāgrahaḥ.* NKuP., pt. I, p. 79.

[63] The antidote is technically called an *uttejaka* or stimulating agent, since, according to the Prābhākara, it stirs up the activity of the causal power by freeing it from the influence of the counteracting agent; it is also called *uttambhaka* because it arrests (*uttabhnāti*) or neutralizes the activity of the counteracting agent.

[64] SM., pp. 51-55.

to admit all these conditions as necessary for the production of the effect. But he postulates in excess a causal power for which there is neither any evidence nor any logical necessity.

6. The Relation of the Effect to the Cause

Does causation imply emergence (*āvirbhāva*) or origination (*ārambha*)? In other words, is the effect a pre-existing thing appearing in a developed form, or is it an absolutely new event? The Sāṅkhya-Yoga school advocates the former position; the Nyāya-Vaiśeṣika, the latter. According to the Nyāya-Vaiśeṣika, the effect is a thing which comes into being by negating its previous non-existence—which, in other words, begins to be after having not been before. This is *asatkāryavāda*, the doctrine that the effect does not exist before its production. As against this obviously creationist position, the Sāṅkhya holds to *satkāryavāda*, the doctrine that the effect exists beforehand in the cause.

We shall state the Sāṅkhya view in some detail and along with it discuss the grounds on which the Naiyāyika disapproves of the view.

The Sāṅkhya argues that a non-existent (*asat*) effect cannot by any means be brought into existence, for if the production of the non-existent be admitted, an absolute nonentity like a hare's horn cannot be prevented from being produced. The fact is that nothing can be made to forfeit its own nature and assume that of another. No amount of technical skill can turn red into yellow. We press oil out of oil seeds; sands do not contain oil, and we can never make them yield it, whatever we do. So if the effect be non-existent at any time, there is nothing we can do to make it existent at some other time. The effect, therefore, should be supposed to pre-exist in some form or other.[65]

The most obvious objection to the Sāṅkhya argument, according to the Naiyāyika, is that it makes no distinction between what is an absolute nonentity and what is merely pre-

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[65] STK., p. 64.

non-existent. An absolute nonentity like a hare's horn is, by its very nature, non-existent for all time and is therefore unproducible. An effect, such as a jar produced by a potter, is, on the contrary, non-existent only so long as it is not produced; so it is characterized by both non-existence and existence—non-existence before the necessary causal operation, and existence from after that operation until destruction. Such a position does not involve a violation of the law of contradiction, since the contradictory properties—non-existence and existence—characterize the effect successively and not simultaneously.[66] But it may be asked: "If the effect does not exist before its production, how can the property of non-existence be predicated of it at that time? How, in other words, can a thing possess a property without existing?" To this the Naiyāyika replies that when the property is non-existence, the effect can possess it only by not existing, for nothing can be both non-existent and existent at the same time.[67] The fact is that it is only an unreal fiction that is absolutely uncharacterizable; we cannot say of a hare's horn that it is long or short, or that it is present or absent at a particular time. But an effect is a proved fact; it is a real. So it can be characterized as absent before it comes to be present, and as present when it has ceased to be absent.

The Sāṅkhya makes much of the impossibility of producing the non-existent; a fiction like a hare's horn, he argues, can never be produced. But the Naiyāyika replies that a fiction is not produced, not because it is non-existent, but because there is no cause of it. That alone is produced which has a cause, and whatever is produced is found to be non-existent before its production. It is however not suggested that anything that is non-existent can be produced, or that non-existence by itself is a condition of production.[68] There is, in fact, no logical criterion to ascertain why only *some*, and not all, non-existent

[66] NK., p. 144.

[67] STK., p. 65; NK., p. 144.

[68] *Na tad asattvān na kriyate kintu kāraṇābhāvāt, na cā 'sattvam utpattau hetur api tu sato 'nutpatter asad utpadyate.*

NV., IV. i. 50, p. 491.

facts become subsequently existent. The question why the hare's horn is not produced is, therefore, absolutely futile. We may plead ignorance of the reason, or we may simply say that the hare *is never seen* to grow a horn. There is no inherent contradiction between the hare and the horn, which can be known *a priori*, and on the basis of which it can be asserted that the hare can never grow a horn. After all, it is only *after* the occurrence of an event, and *not before*, that we are entitled to refer it to a cause. Hence so long as an event is not actually seen to occur, there is no situation that demands causal explanation, and we are not justified in enquirig whether the event exists in its cause or not. To say, therefore, that the hare's horn cannot be produced because it is non-existent, is to argue *in vacuo*.

Another argument advanced by the Sāṅkhya in support of his position is that there is a necessary relation between cause and effect. To deny this relation is to say that anything may produce anything. For, in the absence of a determinate relation between the material cause and the effect, there can be no ground for restricting the causal operation (*kāraṇavyāpāra*) to the production of a particular effect. When all effects are equally non-existent and unrelated to the cause, there is no reason why one particular effect rather any other should occur, whatever the cause may be. But this is a flat contradiction of the law of causation. It has therefore to be admitted that a definite cause produces a definite effect because of a necessary relation between the two. And since no relation is possible in the absence of either of the relata, the things connected as cause and effect must *exist together*. An existent cause cannot be conceived as having a real connection with a non-existent effect.[69]

But it may be asked : "Cannot an *unrelated* cause produce a *non-existent* effect in virtue of a special potency or efficiency (*śakti*)? Is it not possible to avoid the contingency of unrestricted production by supposing that a particular kind of

[69] STK., pp. 65-66.

cause has the efficiency towards producing only a particular kind of effect?" The Sāṅkhya replies that the substitution of efficiency for relation does not afford an escape from the position that the effect exists before its production. Efficiency is understandable in relation to a substratum (*āśraya*) and a result (*śakya*). The cause is the substratum; but unless the other term, *viz.*, the result, is actually present, the efficiency cannot relate to it. And if an unrelated efficiency is posited, it cannot fare better than an unrelated cause, for any result can logically be supposed to be produced by means of it. Thus the efficiency of a cause towards producing a particular effect implies that the efficiency must abide in the cause and relate to the effect simultaneously.[70]

In reply to the Sāṅkhya argument the Naiyāyika observes that the fact that there is a necessary connection between cause (or its efficiency) and effect does not prove that the two terms exist together. The connection is there no doubt, but it is not true that such a connection is impossible without the contemporaneity of the effect with the cause. The peculiar efficiency of a *class* of things to produce a particular *class* of effects is established on the evidence of their agreement in presence and absence (*anvayavyatireka*). This peculiar causal efficiency as well as the particular cause which is its substratum bears to the relevant effect a relation of logical entailment. The fact that we can argue from the cause (provided it is accompanied by all accessories) to the effect presupposes that the former entails the latter. The relation of logical entailment is not like the relation of conjunction or inherence which necessitates the co-presence of the relata.[71] There is, therefore, no incongruity in the supposition that the peculiar efficiency[72] of an individual cause towards producing a particular effect is understood even

[70] *Ibid.*, pp. 67-68.

[71] An actually produced effect, however, is contained in and sustained by its constitutive cause (*samavāyikāraṇa*), and is, therefore, synchronous with it.

[72] Causal efficiency (*śakti*), on the Nyāya view, is not anything apart from the fact of being a cause (*kāraṇatva*).

before the effect is actually produced. As Ewing rightly observes: "The view that causation involves logical entailment has often been stated in a logically wrong way. It has often been said that the effect must be contained in the cause, or that there must be identity between cause and effect. These statements, taken strictly, are preposterous. The effect cannot be contained in the cause, for otherwise all causation would be simultaneous; and it cannot be identical with the cause in the proper sense of the word, for otherwise it would not be a different event. Both views would do away with change and so with causation itself."[73]

Still another ground is given by the Sāṅkhya to prove the pre-existence of the effect. According to him, the cause and the effect are identical in nature, and so when the cause exists the effect cannot be non-existent. The Sāṅkhya uses a number of arguments to show the fundamental identity of the material cause and its effect. (*i*) A piece of cloth as a product of yarns is nothing but yarns in a particular state of arrangement; it is thus only one of the aspects of the yarns. But of two admittedly different things, such as a cow and a horse, one cannot be supposed to be an aspect or state of the other. (*ii*)The material cause is the stuff (*upādāna*) of which the product is composed. The relation of the component and the composite (*upādānopādeyabhāva*) cannot subsist between things which are essentially different, say between a pot and a piece of cloth. (*iii*)It is impossible that a piece of cloth should ever come into conjunction or remain out of conjunction with the yarns of which it is composed. The impossibility is due to the non-difference of cause and effect, for it is only of numerically different substances that conjunction (*saṃyoga*) or absence of conjunction (*aprāpti*) is predicable.[74]

The Naiyāyika however thinks that these and other similar arguments to prove the identity of cause and effect are not only unconvincing but fallacious, for they are based upon unwarranted generalization. It is true that certain numerically different

[73] Ewing: *Idealism*, p. 172.

[74] STK., pp. 68-70.

things are not related as cause and effect, but this does not imply that there can be no relation of cause and effect between things which are numerically different. In fact, numerical difference cannot be shown to be incompatible with causal relation. On the contrary, the identity of cause and effect appears to be completely indefensible against the compelling force of our experience and language. We never feel that a pot is the same thing as a lump of clay. They differ in their structure and configuration ; they produce different results and serve different ends ; they occur at different times and are expressed in different terms.[75]

The fallacy of the Sāṅkhya argument is ultimately traceable to the assumption that there can be no inseparable relation between two *different* entities. The Sāṅkhya does not admit the relation of inherence, which, on the Nyāya view, binds the relata inseparably together. He has therefore to explain the inseparability of cause and effect in terms of identity. But this he can do only by reducing causality to a one-termed relation and accepting the obviously absurd position that "there is an absolute tautology between the effect and its cause."

We now propose to explain and examine the implications of the Sāṅkhya view according to which the effect is a pre-existent fact. The effect, however, pre-exists only in a latent form, and the causal operation serves to make it patent. The causal operation is not therefore useless, in spite of the pre-existence of the effect ; it finds its justification not in the creation of what was previously non-existent, but in making manifest what was unmanifested before.[76] Production and destruction, on the Sāṅkhya view, mean respectively the coming out of an existent fact and the lapsing of it into its original state. Just as the limbs of a tortoise are thrust out and withdrawn, so also the effects emerge out of and merge back into their causes. The emergence is not creation *de novo*, and the merger is not annihilation.[77]

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[75] NV., IV. i. 49, p. 493; NK., p. 144.

[76] STK., pp. 65-66.

[77] *Ibid.*, pp. 71-72.

But the Naiyāyika observes that the interpretation of production as manifestation does not stand scrutiny. The manifestation is apparently a contingent fact. So the question arises: Is the manifestation pre-existent or not? If pre-existent, it means that there is no necessity for any causal operation to bring manifestation into existence. So when the effect exists in its cause, its manifestation is also present. But this amounts to the admission that the effect exists in its cause in a manifested form and does not stand in need of the causal operation for its manifestation. It cannot be contended that the pre-existent manifestation was in an unmanifested state before the operation, for such a contention would necessitate the postulation of an infinite series of manifestations. If, however, the manifestation is pre-non-existent, we have to assume that it is *created* by the operation of the cause. But any other effect is as good an effect as the manifestation. Why, then, should it be supposed that the manifestation is the only effect that is liable to origination, and other effects simply become manifest?

To all this criticism the Sāñkhya may, of course, reply by saying that the questions raised about manifestation may be raised about origination too. Is the origination of a pre-non-existent effect pre-existent or not? On the first alternative, the causal operation becomes unnecessary; on the second, an infinite regress is inevitable.

The Naiyāyika, however, asserts that the difficulty does not arise, since origination is, according to him, something that is not susceptible of production. Origination—for a positive effect (*bhāvakārya*) which alone can have a material cause—is really a case of the inherence of the effect in its material cause (*svakāraṇasamavāya*), or a case of the inherence of the universal 'existence' in the effect (*svasattāsamavāya*). When a pot is said to come into existence, what is meant is that the pot comes to inhere in the material, clay, of which it is composed, or that existence comes to inhere in a pre-non-existent pot. And since the relation of inherence is an eternal fact, origination as a form of inherence precludes the necessity of

another origination. This, however, does not imply that the operation of the cause is unnecessary, for though the relation of inherence by itself is an uncaused fact, its incidence in the effect is a definite event and, as such, must have a cause. Thus the justification of the operation lies not in the production of the origination of an effect, but in the production of the effect itself which, on the Nyāya view, remains non-existent till it is actually brought into existence.

In the later Nyāya texts, however, origination is defined as a natural relation (*svarūpasambandha*) between the effect and the first moment of its existence. The proposition '*A* is produced' is found on analysis to mean that *A* enters into a temporal relation with the first moment of its history.[78] The relation between *A* and the moment is a unique relation which is not anything in excess of the terms. Origination as a time relation thus turns out to be identical with the effect itself ; so it can come into being only through the aid of the causal operation. Since a pot, on this view, is not different from its origination out of clay, the production of the pot is itself the production of its origination. The question of an infinite series of originations, therefore, does not arise.

There is thus no logical absurdity in the conception of causation as origination. The effect is not merely the cause with a change in form ; nor is it a mere actualized potentiality. It is of the essence of causation that there should be a difference of identity between cause and effect ; in fact, cause would not be cause if it did not produce something new or different.

7. The Reality of the Cause

We have seen that, according to the Nyāya-Vaiśeṣika, nothing can be a cause without being real. As against this view, the Buddhist nihilist maintains that nothing that we believe to be existent can be shown to be capable of exerting causality, and that therefore the cause is unreal. Let us see

[78] *Kāryasyā 'dyakṣaṇena saha svarūpasambandha eva hy utpattiḥ.* NKuP., pt. I, p. 35.

how the nihilist makes out his case against the reality of the cause.[79]

The nihilist agrees with the realist that a contingent event is never felt as self-explanatory and that its occurrence can be explained only by reference to an antecedent condition. He, however, thinks that there is no warrant for the assumption that this antecedent condition should be necessarily real ; a pure negation or nonentity is, according to him, quite capable of affording an adequate causal explanation of the event.[80] In fact, the Nyāya-Vaiśeṣika conception of causation as production *de novo* can be consistent only with a theory of production *ex nihilo*. If an effect can come into being only as a negation of its previous non-existence, this non-existence, being an invariable and necessary antecedent to the effect, should be accepted as its cause.

It may be objected here that, if previous non-existence were the cause of an event, it would be possible for the event to occur at a time long before that of its actual occurrence, for previous non-existence being a beginningless phenomenon, cannot fail to be present at any time till it is negated by its own counter-positive (*pratiyogin*), *i.e.*, the effect.[81] This objection obviously assumes that, in the absence of a real and positive cause, an event cannot occur, or that, even if it occurs, there would be nothing to *determine* the occurrence. But the acceptance of this position, says the nihilist, can only mean that no causal determination is possible, for it can be shown that, even on the Nyāya-Vaiśeṣika view, there intervenes a non-existence between an effect and what is believed to be its cause. In fact, if the Nyāya-Vaiśeṣika rules out all conditions that are negative in character, he would be ruling out the very possibility of the production of the effect. What is this cause which according to him is real? Since an effect is not produced by a single condition, the real cause must be supposed to be a group of all

[79] We set forth only some of those arguments which have been advanced by Śriharṣa from the standpoint of the Buddhist nihilist.

[80] KKK., p. 50.

[81] NKu., p. I, p. 43.

such conditions as are necessary for the effect.[82] A seed alone is not the cause of the sprout, but a seed associated with soil, moisture, heat, etc. But this causal group (*sāmagrī*) must wholly cease to exist at the moment the effect is produced, for if it were present at that moment, it would be producing a second effect ; such is the nature of a causal group that its presence at any moment is invariably followed by the occurrence of the effect at the next moment.[83] So the effect comes into being only at the time when what is believed to be a real and positive cause ceases to exist. But if the effect comes into being only when the causal group is *non est*, as the Nyāya-Vaiśeṣika admits it does, there can be no logical bar to its coming into being whenever the group is *non est*, *i.e.*, at any time before the formation and after the dissolution of the group.[84] The Nyāya-Vaiśeṣika may, of course, contend that he also does not demand the existence of the cause at the moment of the effect's origination, as the determinant of the effect (*kāryaniyāmaka*) ; what actually determines the effect is the *existence* of the cause immediately prior to the effect. But the nihilist answers that he too can adopt the same line of defence and maintain that, though a nonentity, *viz.*, the pre-non-existence of the effect, is the cause of the effect and is present for all previous time, still it produces the effect at the particular moment when it ceases to be. It is quite reasonable to assert, on the analogy of the realistic explanation, that non-existence as qualified by the moment immediately preceding that of the occurrence of the effect, is what determines the effect as well as the time of its occurrence.[85] There is therefore no difficulty in supposing that a real effect is produced from and determined by non-existence, *i.e.*, a purely negative condition.

To sum up the nihilist position, the unreal alone can function as the cause, since the immediate antecedent of an

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[82] NM., p. I, p.13.
[83] KKKV., p. 51.
[84] KKK., p. 50.
[85] *Ibid.*, p. 51.

effect is not any positive fact, but a gap or non-existence separating the effect from the cause or group of causes. The sprout is an event between which and the seed there is interposed the non-existence of the seed, for the sprout springs up only after the seed as such has already passed out of existence.[86]

The nihilist position is interpreted in the Nyāya-Vaiśeṣika texts as a theory of production out of non-existence. As a pot is supposed to come into being as inhering in clay, so, according to the Buddhist, an apparently positive effect emerges as intimately related to non-existence; non-existence, in other words, is the constitutive or material cause (*upādānakāraṇa*) of anything that is produced.

The Nyāya-Vaiśeṣika regards the position as unconvincing and untenable. It ignores the fact that the commonsense demand for the cause of an occurrence is not satisfied by anything short of a positive entity. Besides, it fails to account for the transition from existence to non-existence of the cause. What makes the cause cease to exist before the emergence of the effect? One may say that the effect emerges by suppressing or superseding the cause; but that would mean that the effect itself produces the gap or non-existence which is necessary for its own production. And if the effect is already in existence and has a definite function even before its condition is produced, it is absurd to maintain that the effect is produced by that condition.[87] The Nyāya-Vaiśeṣika accordingly does not admit that the effect has anything to do with the production of such negative condition as is held by the nihilist to be its cause.

Non-existence which immediately precedes the effect is, according to the nihilist, nothing but a pure nonentity—an unreal fiction (*avastu*). But how, in that case, can it function as the material cause of the effect which is admittedly real? The effect and its material cause must be homogeneous in nature (*samānajātīya*); a fact emerging out of a fiction is not a fact

[86] *Cf.*, NS., IV. i. 14.

[87] NBh. and NV., IV. i. 15.

at all ; there can be no real death from an imaginary gun-shot, no satisfaction of waking hunger by dream food.

Moreover, non-existence conceived as a pure nonentity is without a determinate intrinsic character (*niḥsvabhāva*) ; it cannot therefore have a determinate potentiality guaranteeing the production of a determinate effect. There is, certainly, no practical way of distinguishing one non-existence from another, say the pre-non-existence of a pot from the pre-non-existence of a sprout, or the post-non-existence (*i.e.*, cessation) of the cause (*i.e.*, the assemblage of conditions) of a pot from the post-non-existence of the cause of a sprout. Thus, so far as the immediate antecedent goes, there is no explanation why, on a particular occasion, a sprout is the effect, and not a pot. Theoretically, at least, we can expect any effect to follow from any cause, for between the so-called cause and the expected effect there intervenes a non-existence which has no specific nature and efficiency.[88]

The Nyāya-Vaiśeṣika, however, admits the real and entitative character (*vastubhāva*) of non-existence, although he denies the possibility of its functioning as the material cause. That function, according to him, belongs exclusively to a substance. To say that non-existence can function as a material cause, is to contradict the law of qualitative causation. The pre-non-existence of the sprout or the post-non-existence of the seed is absolutely qualityless, and yet the sprout which is believed to be its effect is found to be a substance possessing the qualities of colour, smell, etc. Since these qualities cannot be traced in the supposed cause of their substratum, they remain unaccounted for.

To clarify the position of the Nyāya-Vaiśeṣika with regard to the relation between the seed and the sprout, it must be stated here that he also admits that the seed must be decomposed and destroyed in association with certain specific circumstances before the sprout can come into being. For the production of the sprout the destruction of the seed is just as

[88] NV. and NVTT., IV. i. 18.

necessary as the antecedent existence of the seed. The destruction or post-non-existence of the seed, therefore, like the seed itself, acts as an accessory cause (*nimittakāraṇa*) for the production of the sprout, the material cause being the atoms into which the seed is resolved. The destruction of the seed functions as a cause in the sense that it disengages the constitutive atoms of the seed-substance and thus renders them free to arrange themselves into a new form, *viz.*, that of the sprout ; for it is not possible for the same set of constituents to undergo two different arrangements at one and the same time. It thus follows that, according to the Nyāya-Vaiśeṣika, the accessory cause may be positive or negative in character, but a nonentity without an intrinsic character can never exert any form of causality. The Buddhist's theory of the unreality of cause, therefore, rests upon his failure to recognize the various types of causes and the differences of their behaviour in relation to a common effect.

It is clear from what has been stated above that the cause (or group of causes) must be prior to the effect and contiguous to it in time. The cause, we know, is required to bring the effect into existence ; and for this the immediate antecedence of the cause is the sufficient condition. So when the effect has begun to be, the cause has served its purpose. There is therefore no reason why the cause should continue to be present till the moment of the occurrence of the effect ; in fact, such presence, even if it were possible, would have no causal bearing so far as the effect in question is concerned. There is thus a particular moment at which the cause ceases to be present and the effect ceases to be absent. Hence the gap or non-existence antecedent to the effect, of which the nihilist seeks to make so much, is no gap at all ; it is only a mathematical line—a line devoid of breadth—on the one side of which we have the cause or rather the group of all the circumstances necessary for an effect, and on the other side the effect itself. It is true that the material cause is required to be present even at the moment of the emergence of the effect, to make such emergence possible ; it must also continue thereafter as long as the effect exists, of course, no

longer as a cause, but as the constitutive ground or substratum (*āśraya*) of the effect produced by it, for its withdrawal at any moment will mean the immediate disintegration and destruction of the effect. But the material cause is only a part-cause ; it is a part of the cause conceived as a complex of all necessary conditions. Such a complex cannot obviously run into the effect ; when it begins to produce the effect, it is itself liquidated.

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